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## Original Articles

### THIS GENERATION'S CONTRIBUTION TO THE PROGRESS OF MEDICINE.*


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*Ladies and Gentlemen:* The celebrated writer, Dr. Samuel Johnson, in one of his works tells the story of a man who invented a pair of wings; and who, having completed them, ascended a high rock overlooking a lake with the object of flying over the water; his attempt, however, failed, and he fell ignominiously into the lake. Here a strange thing happened: the wings, which refused to support him in the air, easily supported him in the denser element of water and he was able to move with ease and safety. Now, I feel like the man in this story; I cannot rely on anything of my own work to tell you that will support me in this address; I must rely on the general work of the medical profession and this, I think, will give me ample support. I propose, therefore, to address you on the "Progress of Medicine" during the generation in which we live and which, most of us at any rate, are conversant with; a progress so great that it is unparalleled in the whole history of medicine; a progress so extensive that the whole art of medicine has been metamorphosed; a progress so marvellous that in the short space of little more than thirty years more has been accomplished in medical science and medical art for the benefit of humanity than in all the ages that have preceded this epoch.

Medical knowledge, which thirty years ago was merely a collection of clinical observations and theories founded upon them, resulting in treatment, which was mostly empirical, today stands upon a firm scientific basis. This is the keynote of our progress, that our procedures, today, have for their basis, accurate facts, the result of scientifically demonstrated truth.

Medicine is both a science and an art. Medical science consists of the determined laws and facts relative to the preservation of life and health. It takes cognizance of the factors concerned in the causation of disease. It investigates the normal and abnormal. Its handmaidens are the co-ordinated sciences of anatomy, physiology, pathology, and pharmacology. Everything that may cause a departure from normal conditions, every circumstance that is concerned with the restitution of the body to normal conditions, is a fitting subject for investigation by medical science. Hence it may call to its aid biology, chemistry and physics, to help in the elucidation of facts pertaining to its own objects.

The art of medicine is the practical application of the facts determined by scientific medicine to the cure of disease or to its prevention.

Now it is manifest that medical art to be of value must rest on a secure scientific foundation. If we do not know the exact causes responsible for the conditions with which we are dealing, how can we hope to successfully cope with these conditions? A thorough knowledge of the conditions which determine disease and those that favor or disfavor its development is the first essential of practical therapeutics. All scientific medicine is directed towards a successful therapy.

The great triumph of medicine during the past thirty years, is, that our therapeutics are now soundly scientific, that our treatment is specific for specifically known conditions. Disease, indeed, was always with us, but we knew it not. Its clinical course had been accurately observed; symptoms both favorable and unfavorable could be interpreted; but the nature of most diseases and the mode of their incidence was a dead letter. As regards the great mass of disease, etiology was either unknown or entirely erroneous. Great anatomical and physiological prog-

*Presidential address at the sixty-fifth annual meeting of the Illinois State Medical Society, Springfield, May 18, 1915.

ress had no doubt been made; but isolated discoveries such as the circulation of the blood were of little use to man who had to deal daily with disease. In the light of the present day knowledge the profession of thirty years ago was densely ignorant. And in the art of surgery, brilliant even as it was—for in those past days there were giants of the scalpel—yet their great anatomical knowledge and splendid technic were nullified by factors of disease which baffled them and which they were powerless to deal with.

The second half of the nineteenth century has been called the age of scientific experimental research. This was a period that witnessed an extraordinary outburst of scientific activity. The researches of Darwin and his co-workers had stimulated the work in experimental biology, which was destined to be of such moment to medical science. In this period men sought with untiring zeal to unfathom the facts relative to life, to study normal and abnormal conditions of life and to segregate the essential causes of disease. The directive force of this activity gave to etiology—the doctrine of causation—the dominant place which it now holds in medicine. In the survey of the historical progress of medicine during this period no one can fail to be struck by the marvelous advance in etiology, the origin of disease, the mode of its incidence, the investigation of its course and sequelae and the conditions which modify it. It is no wonder that the survey of this field, this most active and successful work, led Osler to exclaim that the "Experimental work in physiology and pathology during the second part of the last century did more to emancipate medicine from the routine and thraldom of tradition than all the work of all the physicians from Hippocrates to Jenner."

It is not possible for me within the limits of this address to deal with the many phases of medical progress, and I must therefore confine myself to a somewhat generalized enumeration of them. The three great factors in disease on which investigation was centered were:

(a) The nature and essential causes of disease.

(b) The power of resistance to disease.

(c) The circumstances affecting disease.

As regards the nature and essential causes the most signal advance is connected with two great names—Virchow and Pasteur. To Virchow we owe the basis of our present system of pathology and all that this implies and to Pasteur we are indebted for the elaboration and proof of the germ theory. To Louis Pasteur more than to any man before or since his time is modern medicine indebted, and I have no hesitation in saying that to his work more than to all the work of all the scientists in all ages is humanity indebted. This may seem at first a strong opinion, but I think that an analysis of the facts directly traceable to the influence of his discoveries amply justifies it.

Virchow's great contribution was the establishment of his system of cellular pathology, based on the study of the minute morbid histology of tissues and structures which were traced back to the primary cell. It was his dictum that in the primary cell must be sought the beginning of disease. Correct pathology must depend on correct physiology and as Adami points out:

> There was a long standing divorce between physiology and pathology (which, however, are inseparable in the dependence of the latter on the former). Virchow developed modern pathology; his teaching was based upon exact study of diseased organs and the correlation between gross and microscopic effects. Effects were followed back to the cell comprising the tissues. In place of considering organs or tissues as units there was developed a true cellular pathology.

Virchow's researches were of the utmost value to both physiologist and pathologist in tracing normal and abnormal growths. The chemistry of the cell—physiological chemistry—became a matter of prime importance and may almost date its inception from this period. There was a different conception of life. It was seen that it was a continual dependable process—a more or less chemical process of breaking down of complicated structures into simpler ones and reconstructing new from old. If we do not understand the laws which govern the forces that originate these processes we are at least satisfied that our knowledge of their working has very materially advanced and is continually widening as investigation proceeds. A vast field is here still open for investigation for it is essential in the study of metabolism as well as therapeutics that the methods of arrangement of the elemental substances which form different compounds in the body should be known as well as the chemical processes which bring them about. It is only a matter of yesterday that Nature's laboratory has been opened to us and that we are

enabled to see some of the secret processes of the body itself.

The brilliant work of Pasteur in the seventh decade of the nineteenth century in the development of bacteriology and the germ origin of infectious diseases paved the way for a host of specific discoveries all of which are of the highest moment and practical utility in the medicine of today.

Thus to tabulate these results:

In 1873, Obermier discovered the spirillum of relapsing fever.

In 1876, Koch isolated the bacillus of anthrax, and this was followed in 1883 by his discovery of the bacillus of tuberculosis, the bacillus of typhoid and the bacillus of cholera.

In 1879, Neisser showed that gonorrhea was caused by a specific agent, the gonococcus.

In 1880, Laveran demonstrated the malarial plasmodium.

Friedland in 1883 isolated the pneumococcus.

The Klebs-Loeffler bacillus of diptheria was discovered in 1884.

Weichselbaum demonstrated the meningococcus in 1887; Pfeiffer the bacillus of influenza in 1891; Kitasato and Yersin the bacillus pestis in 1894; Shiga the bacillus dysenteria in 1902 and in 1905 Schaudin isolated the specific microbe causative of syphilis, the spirocheta pallida, the transmissibility of which by some infective agent had been proved two years earlier by Roux and Metchnikoff.

Pasteur himself had demonstrated the infective origin of anthrax and rabies and inoculated against them with results that are known to all.

The isolation of these causative agents was the signal for the intensive study of their morphology and life-cycles. The role of insects and other carriers of infectious organisms in the transmission of disease was demonstrated—the most important effect being the part played by the mosquito in the transmission of yellow fever which was confirmed in 1890 by the immortal work of Ross, Lazear and Carroll, of whom the last two died martyrs to their zeal.

Armed with this specific knowledge of the causative agents of disease the struggle became one between man and microbe. Definite knowledge gave definite diagnosis. Exclusion of agents meant avoidance of disease and where infecting agents had found an entrance specific means, serums and vaccines, were found to be effective in destroying them. It is in the application of the scientific knowledge to medical art in the prevention and control of disease that the greatest utility of progress must be sought. This is the field above all others in which humanity has been benefited.

The practical aspects of the germ origin of infection and epidemic diseases has not only proved that such diseases can be effectually treated; but for the far more important fact has been brought home to us that they can be controlled and prevented by means well within our power; and that they are avoided when such means are adopted.

This knowledge which has come to us during the present generation has entirely changed the position of the doctor towards the aspect of disease. Today the doctor is more concerned with the prevention of disease than with its cure. He is not content to wait till disease appears. He anticipates the causes, because he knows them and their effects, and he takes timely measures to intercept them. Moreover while recognizing our duty to the individual patient the scope of that duty has been considerably widened and we become guardians of the community at large; hence not only must the medical profession be supervisors of private and personal hygiene, but when actual disease is manifest we become guardians of the public health and take public measures to prevent its spread. This important work, the notification and isolation of communicable disease, is entirely a growth of recent years and of its effects it is unnecessary to speak for it is now an essential part of national life and public policy.

In its campaign of preventive medicine the profession has found it necessary to act as directors of public health measures and to focus the attention to the importance amongst other things of pure water supplies, the disposal of wastes and sewage, the examination and distribution of food supplies, the supervision of the conditions under which the people live and work, the suppression of nuisances, the betterment of hygienic conditions in schools and overseeing the formative conditions generally in the young, as well as the general education of the people in the fundamental laws which govern the avoid-

ance of disease and the improvement of future generations.

Practical preventive medicine has become a function of the state and in all the activities just mentioned it will be seen that the aspect of the doctor and the people in general towards disease has changed and that this change has been imperative, brought about by the undeniable nature of the origin and propagation of infectious diseases.

Now it may here be asked what are the actual results of the application of definite knowledge in the handling of definite disease and its prevention. As regards prevention we can only conjecture what might have been, and we can only point to the conditions in past ages. What we can say is that epidemics of magnitude no longer occur. Yellow fever, cholera, and typhus have all but disappeared. Diphtheria, malaria, typhoid, hook-worm disease and tuberculosis are well within control and show a steadily declining mortality. Let us take just a few examples:

In Boston alone prior to 1882 the death rate from pulmonary tuberculosis was over 42 per 10,000. In the following twenty years it fell to 21 and is now less than 18. These figures may be taken as indicative of results elsewhere and yet tuberculosis is one of the general diseases in which least progress has been made.

Again it was only in 1888 that Roux and Yersin demonstrated that the diphtheria bacillus kills by producing a soluble poison in the system. Two years later Behring and Kitasato showed how by injecting small doses of this toxin animals became immune to the disease. They demonstrated the general conditions under which immunity against the effects of this fell disease could be obtained. In 1893 the death rate in 19 of the large cities of the world was over 80 per 100,000 of the population; but in 1895, after the introduction of antitoxin treatment, gradually fell off and is now only 15 under all conditions with a constantly lessening ratio. There is no sufficient reason why there should be any deaths, or at least very few if the disease is dealt with in time. In the Boston city hospital for instance during the past sixteen years about 450 cases of diphtheria developed among the staff and attendants in the contagious wards. They received immediate treatment and there has not been a single death due to the disease.

Consider puerperal fever. Puerperal fever was the scourage of motherhood. To women it was what war was to men. The public records of the Prussian state show that in the sixty years ended with 1875, 400,000 died from this disease. In 1879 Pasteur demonstrated the streptococcal origin of this disease and the result is that today the mortality is less than 0.1 per cent.

Again take typhoid. So recently as the Spanish-American war we find record that there were more than 30,000 men disabled by typhoid of which a large portion died. In fact, 86 per cent. of the total mortality was due to it. In all instances where men were exposed to severe conditions, with irregular and poor food and doubtful water supplies the mortality from typhoid was enormous. Protective inoculation has, however, banished its terrors. Within the past few years in an army of 13,000 men mobilized in Texas only one case of typhoid developed. Its value is seen today in the fact that typhoid inoculation is now compulsory in the armies both of the United States and Europe. Quite apart from the prevention of typhoid by better sanitation it is safe to say that tens of thousands of lives have been spared by preventive inoculation.

Similarly with cerebro-spinal meningitis. It is only recently, in 1907, that Flexner perfected his serum treatment for this epidemic disease, with the result that this source of danger to our child-life has had its mortality reduced to one-third, and its concomitant effects, deafness, blindness, etc., almost banished.

If there was any disease more blasting than another in its effects on the population of our southern states it was the hook-worm disease. Its dire effects on the prosperity and well-being of the south cannot be estimated, but it is conceded that to it must primarily be attributed some of the principal factors concerned in the lack of general progress and prosperity which has characterized the south. The recent investigation by Stiles has thrown a flood of light on this disease and we have every reason to hope for its extirpation within a decade.

The application of the bacterial origin of surgical septicemia is responsible for the brilliant advance in surgical results. Since 1876 when Lister inaugurated his antiseptic method of operation, the word marvelous alone can express the series of results which surgery has accomplished.

Abdominal surgery, thoracic surgery, brain surgery, heart and lung surgery, all contribute their quota to these results. There is not a region of the body which the surgeon does not today expose and enter without any fear, and with such well calculated possibilities that surgical treatment of many conditions is chosen rather than the slower so-called medical methods of treatment. But not alone must surgery be congratulated on its direct curative results, but indirectly for the aid it has given to medicine in the direct observation of pathological processes and the information derived therefrom regarding conditions which were obscure. If surgery is indebted to medicine for the knowledge which enabled it to deal with its most formidable foe, it has repaid its debt by its contribution to pathology.

There are a few matters which I would like to allude to here, even if I digress from the strict sequence of the narrative, because of their importance in the treatment of disease.

First there is the great advance in our knowledge of the functions of the internal secretions and the many disorders which spring from their derangement. Since 1855 when Claude Bernard first showed their physiological importance there has been a continual advance. They have become part of our applied therapeutics. Hormone therapy generally is opening up a wide field in practical therapeutics.

Then there is the employment of the Roentgen rays, both in diagnosis and treatment, which has become a specialty and is almost indispensable in present day surgery.

The work of Crile in nerve-blocking and anoci-association promises to eliminate shock, one of the remaining dangers of surgical interference.

There are two other great advances connected with treatment of disease which will readily occur to you and which I can briefly allude to. I refer to the institution of trained nursing service and the wonderful development of hospitals. Both for clinical observations and examination, as well as for the regard due to precise hygienic, dietetic and aseptic measures the hospital and trained nursing were necessary developments of medical progress. Hospitals have, of course, been with us a long time, but the great development in their management and internal economy, and in their use by the great mass of the people makes a modern hospital quite a new institution.

The consideration of the work done by the medical profession in the prevention and treatment of disease brings us naturally to consider the broad question of the relation of medicine and social service. Today medicine holds a larger place in national life than at any time in history. Public health is, as I have said, a matter of national policy. The people have come to understand that health is their greatest national asset. Every state, every industry, every national movement, whether public or private, is conducted with a due regard to it.

In national economics we might easily point out the gain in the actually demonstrated increase in the longevity of the people. But such statistics would only tell a part of the tale; the value of medical progress in national economics is not to be measured by mere increase in longevity, but far more so in the improvement of the conditions under which individuals work and in their resultant improved personal economic value and efficiency. From an economic and social standpoint life is not of much use to the man who is not efficient in health.

The time is well within the recollection of those present when one commonly met in our streets the cripple, the blind and many others who evidenced their incapacity and who were either public or private burdens on the community. The consequences of disease were to the individual almost as bad, if not worse, than the disease itself. Today thanks to our more radical therapeutics, medical, surgical and preventive, one rarely sees evidences of disability. Disease is checked in time and efficiently treated and men are enabled to go through life and be efficient machines for the accomplishment of their alloted tasks. I say without hesitation that the vast increase in national economic progress, which the past one-fourth century has witnessed, not only here but wherever enlightened public opinion and legislation has kept pace with medical progress, has been due to the greater health efficiency of the people; and that it would not have occurred had such health efficiency been absent. It is more than a mere coincidence that the period of history which has witnessed the greatest commercial and industrial expansion, is coeval with that in which has been the greatest medical progress. Just as surely as strict regard to hygienic laws put into practice brought

about the triumphal accomplishment of the magnificent work of the Panama canal, just so surely in every walk of industrial life has the betterment of health and a more careful co-operation in hygiene by the people been responsible for the improved conditions. I therefore lay it down as a corollary that national prosperity and national greatness are directly dependent on national health, for this is true just as it is true and always was true that sickness, idleness and poverty are the progenitors of degeneracy and crime.

This is the service which enlightened medicine is rendering to civilization and social progress and this is the true measure of the value of its advance. Governments have not been slow to recognize the value of medical progress in national economics. Ever since the discoveries of Pasteur the question has inevitably been forced upon them. The *laissez-faire* methods of previous generations, the delegation of questions affecting health as private individual matters, has had to go; and the broad principle has been recognized, as a matter of state, that society must do for the individual what he cannot do for himself in the utilization of scientific advance for the preservation of health. This is the foundation for state interference in health legislation, quarantine laws, public health education and the establishment of health departments. In the United States the American Medical Association was the pioneer in the demand for the creation and maintenance of public health boards, and today there is not a state in the Union and not an important city without such a board, charged with the duty of public sanitation and the protection of public health. It is clearly evident that the organized medical profession is ever watchful that the best interests of the public are served.

But legislation alone does not suffice. The main point is that the people themselves must see the necessity for such legislation and must demand it. This is a matter of public education. The medical profession can only point the way. The people must of their own will follow it. They must see that health legislation is not a question of interference with liberty of action, that restrictions are for the public good, and that, even though sometime such restrictions may be considered as a hardship on individuals, the greatest good to the greatest number must be the principal on which all such legislation must be judged.

The people are awake to their responsibility in this matter and there is a growing recognition of the fact that public health is vitally connected with their economic life and happiness; and that its loss means economic dependence. All legislative enactments rendering punishable infringement of industrial hygienic regulations, insanitary housing and the adulteration of food, must be the direct demand of the people themselves. As I have said the medical profession can only show the way. The enforcement of health laws only proceeds to that point where an intelligent people co-operate with and observe them.

I finally come to the question of the physician himself. In this great advance of medicine has the physician advanced? I emphatically say that he has. New measures require new men and the physician of today is fully alive to his increased responsibility and importance and is fully equipped to meet them. We frequently hear it said that the old-time practitioner has disappeared. But though the old type of family physician has passed, he is replaced by a better type; and the position of the family physician today is more important than ever it was. Although the etiology of most diseases is better known there is still a very wide field for the study of the causes which favor or disfavor the course of disease. It is one thing to accurately diagnose a disease. It is another thing to know a particular patient's power of resistance to that disease and the immediate circumstances which in his given case affect that resistance. It is in this connection, and particularly with the many non-infective diseases of every day life, that the position of the family physician is paramount, and that he has the opportunity, which no specialist or operator can have, of daily observation of life and habits of his patients. Every circumstance connected with the patient is of importance—pleasures, occupation, food, luxuries, habits, climate, congenital or acquired defects, etc. The services of the pathologist or bacteriologist are not required here. It is essentially the province of the family physician and the results deducible from his observations are as important as those of the laboratory. And the family physician is, as I have said, equal to the circumstances. His education is better. There is no slip-shod way today to the practice of medicine. Nor is there any chance of excusing himself from keeping touch

with developments. There is a multiplicity of high-class journals in which every phase of progress is brought to his immediate notice. Professional organization, better transportation and increased fraternalism give him frequent opportunity of exchanging views and widening his knowledge of others. Every facility of modern progress is utilized in giving a better service to the public. But perhaps more important still, the increased knowledge of the people regarding disease and its treatment demands the best qualified men and no other can succeed or be acceptable. Hence I again say emphatically that, great as had been the advance in every phase of scientific medical treatment, the practitioners of today are fully competent to deal with it and there is not a country district throughout the land in which men cannot be found acquainted with and competent to treat any disease with the best means, surgical or medical.

Moreover the necessity for the highest efficiency in the profession is by none realized more than by the profession itself. I need only allude to the successful efforts of organized medicine as represented by the American Medical Association in raising the standards of medical education, in the campaign for the closing of disreputable schools and in its ceaseless warfare against all quacks and medical pirates.

Ladies and Gentlemen: Never in history has the physician stood forth more worthy of public esteem and honor than today. His mission is high and his aims are noble. His work is arduous and he must be ever ready to sacrifice every tie, private and personal—aye even his life—in the call of duty. He is the servant of the people, unselfish in his efforts during public calamity or private grief, the friend who is ready, able, and willing to bring relief in your hour of trial. And his reward is at the best scant; often, too often, it is only his own consciousness of rectitude, the reward that springs from the satisfaction of a good work well done. All honor then to the men who have and who are devoting their lives not to selfish ends, but to making the lives of their fellows sweeter and better, and whose constant aim is that they may better be able to perform that work.

In conclusion though there are many phases of medical progress which the time at my disposal does not enable one to deal with or only briefly allude to, yet I hope that the facts I have brought before you are sufficient to justify my claim that during the present generation greater advance has been made in every phase of medical science and art than in all the ages which preceded it and I venture to say that this era will be noted in medical history as the Golden Age of Medicine.

Great is the legacy which this generation leaves to the next. Let us hope that they will pass it on wisely husbanded and increased. If they equal or exceed the work of this generation it will only be by work, steady work, and preserving zeal; for as Longfellow beautifully says:

"The heights by great men reached and kept
Were not attained by sudden flight,
But they while their companions slept
Were toiling upwards in the night."

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## A CLINICAL AND EXPERIMENTAL STUDY OF POST-OPERATIVE VENTRAL HERNIA.*

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It is with a certain degree of hesitation that one comes before you to discuss a subject which can be regarded in many instances as a reproach to the operator and an evidence of the fact that our art of surgery has not kept pace with the development of surgery the science.

It seems paradoxical, but we must admit that post-operative hernia is indirectly a product of advances in asepsis which allow frequent opening of the abdomen.

Two reasons influenced me in the choice of this, to some disagreeable, subject for my address. The first will readily become apparent to any one who attempts to look up the literature bearing upon post-operative hernia. Consult the great Index Medicus itself and you will be surprised to see how little has been written regarding it and how difficult it is to find that little. Just why this should be so, when the importance and frequency of the lesion are considered, I cannot say. A relatively large experience in the treatment of this malady

*Oration on surgery, Sixty-fifth annual meeting, Illinois State Medical Society, at Springfield, May 19, 1915.

and the interest awakened thereby furnish my second reason for today's choice.

It is well to state in passing that my consideration of this subject differentiates sharply between post-operative hernia, having a well defined ring with sac, and muscle paralysis with stretching as a result of nerve section.

My own interesting experience in the treatment of post-operative hernia embraces a study of seventy-four people on whom I have operated for this accident. In twenty-four cases the *original* operation was performed by me.

Out of the seventy-four we know definitely of success in fifty-seven of them; the time between their operation and when last heard from ranging from one week to nine years, an average of eleven months. In seven of these cases we have been unable to learn the result. Six were complete failures; in two of them a filigree was used; the overlapping method being employed in the remaining four instances. Ferguson,[1] who was a master of this subject, thought the overlapping of thinned out fibrous structures likely to give recurrence, in spite of the enthusiasm attending the use of the method.

The four following patients died: 1, a strangulated hernia, eight hours after operation; 2, a cancer of the uterus, a few weeks later; 3, a cirrhosis of the liver after four days; 4, a second cirrhosis of the liver died very suddenly eleven days after operation during my absence from the city.

Causes: In three cases vomiting was mentioned as a prominent factor and coughing in three others; drainage had been used twenty-three times. None were traceable to meteorism.

The time the patient had remained in bed following the original operation ranged from three weeks to five months, an average of seven weeks.

A binder had been worn from six weeks to two years, an average of eleven months.

The onset of hernia had varied from immediate up to four years, an average of one year after operation.

One of the most interesting observations which I have made in this connection is that there is a vast difference here as elsewhere between lesion and symptoms. For instance, one of my worst appearing recurrences is in a lady who considers herself cured and constitutes one of my good walking advertisements.

A glance at the literature of the subject (involving a certain amount of repetition) impresses one with the fact that certain constant factors practically determine the occurrence of hernia after a laparotomy.

Tate[2] believes that post-operative hernia is much more common in fleshy women and in multiparae; where there is too long an incision or one that is unnecessary; where there is too much clamping, and after transverse division of muscle fibers. He also remarks that wounds do not unite well in very frail people.

V. H. Johnson[3] gives the following factors in production of hernia following appendectomy: 1, long incision; 2, cutting off nerve supply to muscles; 3, incision made through muscle tissue; 4, closing incision with a single set of sutures in one layer; 5, packing the wound with gauze; 6, length of incisions is not more important than tissues through which they are made.

C. George Bull[4] has observed the following causes of hernia after operation: 1, drainage (to be used only when absolutely necessary and then a small drain; after removal of same, stitch the ununited fascia); 2, wounds healing by granulation; 3, failure to bring fascia into proper apposition, resulting from method of suturing or tension; 4, division of nerve supply to muscles of abdominal wall; 5, vomiting and straining from any cause; 6, abdominal tension from flatus; 7, rapid accumulation of adipose tissue after operation.

Sprengel[5] was chosen to discuss post-operative hernia as one of the principal subjects considered by the German Surgical Congress in 1914. He gave as his opinion that the following five factors were at fault: 1, tampon; 2, infection; 3, inaccurate suture and improper material; 4, post-operative injury (vomit, etc.); 5, physiologically incorrect incision.

Wolff[6] considers gas to be in direct casual relation to post-operative hernia; hence the importance of its prevention after laparotomy.

J. H. Jacobson[7] reports that out of seven-

1. Ferguson: Clinical Review, August, 1904.

2. Tate: Cincin. Lancet-Clinic, 1903, N. S., L., 583.
3. Johnson, V. H.: Jour. A. M. A., 1898, XXXI, 402.
4. Bull, C. George: Calif. State Med. Jour., 1905.
5. Sprengel: Jour. A. M. A., LXII, 1672 (Rev.).
6. Wolff: Cent. f. Chir. XXIX, 1289.
7. Jacobson, J. H.: Am. Med. Compend, Toledo, 1912, XXXVIII, 177-180.

teen cases of incisional hernia, seven occurred following operations for pus appendix and ten following median abdominal incision. In only two cases did a hernia appear where the original incision healed by primary union. It is more frequent where incision is made below the umbilicus, but very infrequent following gall-bladder or stomach operations even with drainage. This is due to difference in intra-abdominal pressure.

Nyatt and Buckner[8] in five hundred and eighty-six abdominal sections report post-operative hernias in 20 per cent of cases which were sutured en masse; and in only 9 per cent where separate layers were sutured. They also state that hernias followed laparotomy in 40 per cent of cases where suppuration lasted two weeks and in 50 per cent where it lasted three weeks.

Lindenstein[9] examined one hundred laparotomy patients three years post-operatively and found twenty hernias. None of them occurred where healing had been undisturbed by suppuration or tamponade.

Amberger,[10] who examined one hundred and eighty cases more than a year post-operative found twenty-three hernias (12 per cent); sixty incisions of more than fifteen cm. gave 20 per cent hernias. There were more hernias after double than triple layer suture. A binder did not protect. Primary healing is the main thing. Secondary suture is advisable (in layers).

Sabaneew had 60 to 67 per cent hernia after open treatment of appendicitis; Brun in 68 per cent; Amberger, 40 per cent; Fehling, 54 per cent, and Pichler, 65 per cent.

Secondary suture has been of little avail. Pichler[11] writes that it succeeded only four out of ten times in the Mikulicz Klinik.

I personally do not believe that pregnancy is responsible for many post-operative hernias. Pressure of a wide *uterine* surface comes on a weak spot and there is no opportunity for wedge-like action.

No one seems to have proven that a binder prevents post-operative hernia, although it doubtless limits its increase in size.

With the above statistics regarding the line of incision and infection in mind, I wrote to thirty-nine patients whose appendices I had removed in the presence of pus, through the McBurney gridiron incision, leaving a rubber drain in place in every instance. Twenty-four of these people answered my inquiry and of this number only two have hernias, while the status of two others is indefinite.

There is a glaring contrast between these figures and the foregoing in which through and through, drained, infected incisions were followed by hernias with startling regularity. There is no escaping the conclusion that a physiologic incision which splits muscle fibers longitudinally and tends to close up instead of pull open has every advantage.

During the past winter seniors of the Washington University Medical School have operated upon twenty-two dogs under my direction in an effort to determine certain facts relative to post-operative ventral hernia. The results of these studies will be published in detail later, it being sufficient for the present purpose to state that mere damage, no matter how extensive, to the abdominal wall of the dog does not produce hernia with any degree of regularity, if merely skin and peritoneum be sutured. In fact, no bulging at all has occurred in any instance in which the posterior rectus sheath alone has been left intact, demonstrating conclusively that post-operative hernia depends on two general factors: 1, weak wall; 2, *tendency to hernia*, something which was not produced experimentally. Clinical experience shows the same thing to be true in the human subject, since we find hernia occurring in those who have left the hospital well, but who are subject to increased intra-abdominal tension, due to obstruction in digestive, urinary or respiratory passages, and in others who strain at lifting, etc. Any attempt at cure must consider two factors: 1, removal of hernia tendency, and 2, repair of the abdominal wall. The hernia tendency is corrected previous to operation both by reducing the patient's intra-abdominal fat and intestinal contents. One short, plethoric man who came under my care exercised and dieted until he reduced his weight fifty pounds between the two operations. It was at the second sitting surprisingly easy to overlap the tissues, a thing which would have been utterly impossible at the beginning of his

8. Nyatt & Buckner: Old Dominion Jour. Med. & Surg., Richmond, Va., XV, No. 1, p. 24.
9. Lindenstein: Beit. zur. klin. Chir., Bd. LXI.
10. Amberger: Beit. z. klin. Chir., XLVIII.
11. Pichler: Beit. z. klin. Chir., 1902, Bd. 33.

pre-operative treatment. It is an excellent idea to put such patients to bed a few days before the operation, keep them on liquid diet, and practice liberal catharsis. This not only makes the plastic easier, but decreases the likelihood of post-operative meteorism. It is absolutely essential in this connection that a chronic cough be attended to; that any tendency to chronic vomiting or undue straining at stool be rendered improbable, and especially that obstructive conditions in the urinary passages be relieved before one considers an operation for post-operative hernia.

During the operation it will at times be necessary to reduce the tendency to hernia by decreasing the abdominal contents. This is a comparatively simple matter as far as the omentum is concerned, but may take us into extreme technical difficulties, as was the case a few years ago when I resected practically the entire colon, which "had lost its right of habitation." This operation was entirely successful, but will, of course, be very rarely necessary. As a matter of course, undue tension on a reconstructed abdominal wall is bound to result in failure of the operation. Not only this, it must be added that any interference with the movements of the lower ribs is likely to result in respiratory and circulatory derangement which will end fatally.

The prophylactic use of infiltration local anesthesia in a few of these operations has, in my own hands, I am sure, prevented coughing, vomiting, gas formation and urinary retention.

For purposes of treatment post-operative ventral hernias must be divided into three classes: 1, those in which the edges of the opening can be overlapped for a considerable distance in some direction; 2, those in which they can be made to come together in layer construction, and 3, those in which no approximation is possible.

The first two classes have long been treated satisfactorily, but the third opens up highly stimulating possibilities. It would lead us too far afield to review all the measures which have been employed in the operative treatment of the condition. It is sufficient to mention that a great variety of organs and tissues have been utilized in plugging the opening, while the writer and others have devised filigrees and plates of metal to answer the same purpose.[12-15]

Much experience has convinced me that an operation which does not open the sac has certain distinct advantages. It enables one to use to the best advantage all scar tissue and sac wall that may be present. The technical difficulties are greatly minimized if no omental and visceral adhesions are taken care of, to say nothing of peritoneal closure. But the chief gain in not opening the peritoneum is seen in the greatly decreased likelihood of recurrence due to distension, vomiting, coughing and unrest; all of them expressions of the functional intestinal disturbance which I have seen follow extensive handling of these viscera. (Of course, it will be necessary in exceptional instances to open the peritoneal cavity for a pathological condition which is entirely independent of the hernia.)

Karewski[16] retracts skin and fat from the aponeurosis and muscle, then makes an oval incision around the neck and 1 cm. from same. The unopened sac is pushed into the abdomen and the median edges of the fascial wound sewn together. If possible, the exposed muscles are sutured together, otherwise a filigree is formed of wire or silk and built up between the distal margins. He has operated upon thirteen people in this way (six median and seven lateral hernias). One died of nephritis; the others were cured from nine months to four years.

Schültze[17] has used the Karewski operation and most successfully. The peritoneum was not opened, but an oval incision around the ring and through anterior rectus sheath made.

Lindqvist[18] uses the Maydl-Lennander operation, which is the same as the Karewski, except for "relaxing" incisions parallel to the axis of suture line through rectus sheath.

But may we not go further than is done in a simple plastic of this kind and by free transplantation lend additional strength to the affected locality. Now for the possibilities in this direction. There are unauthentic reports of free tissue transplantation out of the seventeen hundreds, but the first operation of the

12. Bartlett, Willard: Annals of Surg., May, 1903.
13. Bartlett, Willard: Interstate Med. Jour., X, No. 9, 1903.
14. Bartlett, Willard: Jour. A. M. A., Sept. 3, 1906.
15. Bartlett, Willard: Surg., Gyn. & Obst., March, 1908.
16. Karewski: Deut. Med. Wochensc., No. 53, IV, 1904.
17. Schültze: Monats. für Gebärtsh. und Gyn., Bd. 13, 1906.
18. Lindqvist: Zentralb. für Gyn., No. 34, 1910.

kind which is above suspicion was done by v. Bunger, when he reconstructed a nose from skin of the thigh. It is natural to suppose that every tissue possibility has been utilized in the effort to cover defects of the abdominal wall, though distinctly the most successful is that of Kirschner,[19] who is the father of free fascial transplantation. He prefers fascia lata because: 1, it is easy to get; 2, there is an inexhaustible supply; 3, it is strong and inelastic; 4, it shows marked tendency to heal in, and 5, it is easy to adapt to any shape. With the appearance of this idea the surgery of abdominal wall defects may be said to have taken on an entirely new aspect.

In the most exhaustive review of fascial transplantation which has appeared to date, Kleinchmidt[20] states that fascia retains its characteristics when transplanted only when it has a function to fulfill. He considers it our most ideal material for repairing of post-operative hernia if layers of wall cannot be united.

Mann[21] writes the richer its blood supply, the harder a tissue is to transplant with success. Hence fascia is ideal because lymph percolation insures its life. For a median hernia he overlapped the two anterior rectus sheaths and at a secondary operation filled this defect with fascia lata with complete success.

Rittershaus[22] reports a case where a flap of fascia lata was sewn into an abdominal wall defect of large size. This had resulted from several laparotomies and was complicated by a fecal fistula. Still the flap healed into its new bed and at the end of six weeks the wall was perfectly solid.

Warschauer[23] reports ten transplantations of fascia lata in the treatment of defects of the abdominal wall. The results were most satisfactory.

Kirschner[24] details the first cases in which he did his free fascia transplantation on the human subject. Among them are a number of abdominal wall repairs with single and double graft, with success in clean and infected cases.

Goldman[25] repaired with fascia lata one defect occurring after acute purulent appendicitis.

Soboleff[26] covered with fascia lata an abdominal wall defect 8x5 cm. No hernia followed in spite of coughing. The patient died after two and one-half months. The fascia was found unchanged microscopically.

Enderlin[27] demonstrated a patient before the Wurzburg "Aerzteabend" whose abdominal hernia had been repaired by fascial transplantation.

Riese[28] relates a case of abdominal hernia following suppuration which he cured by transplantation of fascia lata.

Schmid[29] reports three gynecological cases in which fascia lata was used to fill up defects of the wall, which could not be obliterated by approximating their borders.

A further proof of the value of tissues similar to fascia lata in this connection is stated by Cushing,[30] who has had no fungus cerebri after tumor operations, due, he thinks, to closure of galea with interrupted silk sutures.

Kornew[31] gives an extensive report of experimental and clinical work of various kinds done in fascial transplantation. He concludes that defects of the abdominal wall can be safely so treated.

In the absence of equally convincing evidence in support of other plastic methods, one must concede a high value to free fascial transplantation for the abdominal wall defects involving so much tissue loss as to render liberal overlapping or layer reconstruction impossible.

My animal experimentation tends toward the conviction that the best possible operative treatment of the large ventral hernias (where the edges of the ring cannot be approximated) is: liberal freeing of the neck of the sac from skin and fat; an oval or circular incision clear around the same and at a liberal distance from it, extending through the fascia encountered; inversion of the unopened sac; suture over it of the inverted, proximal, circumferencial fascia, and free transplantation of a flap of fascia lata large enough to fill in the defect produced by the oval or circular incision around the neck of the sac.

The after-treatment will concern itself chiefly with coughing, vomiting, defecation, passage of

19. Kirschner: Beit. zur klin. Chir., Bd. 65, 472.
20. Kleinschmidt: Ergebnisse der Chir. & Orth., Bd. 8, 1914.
21. Mann: Ann. of Surg., 1914.
22. Rittershaus: Deutsch. Zeit. f. Chir., Bd. 110, 609.
23. Warschauer: Deutsch. Zeit. f. Chr., Bd. 122, 67.
24. Kirschner: Arch. fur. klin. Chir., Bd. 62, 888.
25. Goldman: Zentralb. fur. die gesammte Chir. und ihre G., Bd. 3, 85.
26. Ssoboleff: Zentralb. f. d. gesammte Chir. u. ihre G., Bd. 3, s. 179.
27. Enderlin: Muench. Med. Woch., 1911, No. 12, s. 658.
28. Riese: Muench. Med. Woch., 1911, No. 30, s. 1639.
29. Schmid: Gynackalozische Rundschau, Bd. 7, s. 429.
30. Cushing: Jour. A. M. A., Jan. 16, 1915.
31. Kornew: Beit. zur. klin. Chir., Bd. 85, s. 144.

gas and urination, to say nothing of muscular violence; in fact, every form of insult to the wound and the sutures. Of course, the convalescent patient is to be warned against occupation or recreation which unduly raises intra-abdominal tension.

From the foregoing it will have been seen that the causes of post-operative ventral hernia, as far as they come under our control, are: 1, incisions out of keeping with anatomical and physiologic principles; 2, improper wound closure; 3, needless drainage and tamponade. There is also, 4, increased intra-abdominal (post-operative) tension, which we can influence very largely and, 5, wound infection, for which we will rarely be to blame in this age of technical refinement.

This malady can at times tax the skill of the nicest *operator,* and if ideal as well as constant results are to be expected, the problem must appeal to the *surgeon* in the broadest meaning of the word. Any good mechanic can restore the integrity of the wall, but it will require a thinker to anticipate the conditions which disrupted the original scar.

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## THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

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There are few tests of diagnostic skill greater than the detection of latent and incipient tuberculosis of the lungs and for the reason that evidence of the disease may be very obscure, none is more worthy of careful study by the general practitioner. So much reliance has come to be placed on the use of tuberculin in the detection of this disease that in doubtful or suspected cases physicians quite generally resort promptly to the von Pirquet or Moro test and when this is positive it is regarded as conclusive. Hence it may not be out of place to remind ourselves that a positive tuberculin reaction means only the existence somewhere in the body of a focus of tuberculosis and not that this is necessarily in the lungs. Consequently a positive skin test is to be taken as indicating disease of the lungs only in conjunction with symptoms and physical signs pointing to involvement of the lungs. Therefore on being asked to contribute this paper I thought it best to confine my remarks to the consideration of diagnostic data elicited by a physical examination. This is not because of any unusual skill in this direction but because I deplore the apparently growing tendency to rely on the tuberculin skin test to the neglect of other often more useful measures. But even in thus dealing with the subject I shall attempt mainly to emphasize certain points which some thirty years of experience have convinced me are especially valuable in the physical exploration of the chest.

First let me emphasize the fact that in the overwhelming majority of cases the initial lession as regards the lung is to be found in the posterior and not the anterior aspect of the apex. Accordingly in percussing and auscultating the chest one will do well to direct attention first to the supra-scapular regions, for when, according to my experience, the infra-clavicular region is involved or reveals evidence of the disease this latter has passed from the stage of latency or incipiency to that which may be called early, perhaps, but no longer, beginning tuberculosis.

In the very beginning of lung involvement the focus is quite likely to be so small as to yield no positive dullness or at most but extremely indistinct loss of resonance, and yet if very light percussion be employed at either apex alternately the trained ear may usually detect a slight but appreciable difference in the pitch and intensity of the note over a circumscribed area often in the middle portion of the supra-scapular region. Not seldom also one can determine a slight retraction of the affected apex or may even appreciate a sense of slight resistance imparted not to the plexímeter but to the striking finger.

At a later period of the disease owing to the tendency of it to spread downward along the inner border of the lung dullness is found in the upper part of the inter-scapular space and in front adjacent to the margin of the sternum. At the same time partly in consequence of shrinkage of the apex and partly because of tuberculous deposit in the tip of the upper lobe percussion elicits impaired resonance directly above the clavicle. But in all cases of incipient involvement of the upper lobe the percussion stroke should be lightly made, for otherwise the vibration imparted to the underlying parts may ob-

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secure the slight loss of resonance belonging to the limited localization of the infection.

French writers in describing the signs of this very early stage of the process lay particular stress not on loss of resonance but on modification of the respiratory sound. This seems to me attributable to the fact that extremely gentle percussion alone can detect minute changes in lung density and that most examiners therefore are apt to overlook them. But just as the loss of resonance is in some cases almost imperceptible so with the modification of the breath sounds produced by incipient changes in the lung. At this stage auscultation detects, it may be no rales but merely a roughness or harshness of respiration which ordinarily is more marked during inspiration than expiration. In order to appreciate this roughness of inspiration careful and often repeated comparison with the breath sounds of the opposite apex at a corresponding point is necessary. Even then the difference may be so slight as to leave one in doubt unless this be considered in connection with other indications to be mentioned later on.

We should bear in mind that in the very incipiency of this affection tuberculous deposits may exist without associated alveolitis or softening and hence rales are not likely to be heard unless, perchance, there is overlying pleuritis when the breath sounds may possess a parchment-like quality or creaking character. In some cases a fine sibilus may be detected with the first deep inspiration and if confined to the apex in which slight loss of resonance seems present this is very significant. At a later period in the process but still early, fine crepitant rales generally develop which are brought out most distinctly by a forced inspiration or, still better, by cough. But with reference to this cough I should like to say that to develop these rales or signs of moisture as they are called a single short cough should be made at the close of expiration and before a succeeding inspiration is made.

Another procedure regarded by many as of much value is the study of the loud and whispered voice over the suspected apex. According to the laws of sound conduction the vibrations of the voice should be conveyed to the ear of the auscultator more distinctly over even a limited area of consolidation than in the surrounding parts. Consequently Sewall of Denver has laid great stress on the distinctness of the whispered voice in the recognition of a tuberculous focus and as it seems to me very justly. It certainly may serve to confirm the impression obtained by detection of scarcely appreciable changes from what are considered normal percussion and auscultatory findings. This whispering pectoriloqy is assuredly of far more value than is the study of the loudly spoken voice. A deep and sonorous male voice produces a too great vibration, while a thin, high, female voice generates a too feeble vibration to enable the examiner to draw definite conclusions from a study of the two apices.

The same objection holds true according to my experience of pectoral fremitus by palpation of the chest. Nevertheless in occasional instances it has seemed to me that I have been able to detect an increase of fremitus over even a small area of tuberculous infiltration in one or the other apex behind where tubercles first develop and that by very delicate percussion I have been able to elicit slight impairment over the area.

Thus far I have dwelt on the importance of careful percussion and auscultation because they are our chief means of physical examination in cases of latent or incipient pulmonary tuberculosis, but there are other accessory signs which serve as aids in the diagnosis of this often obscure malady. These comprise certain visible differences in the aspect of the two apices, such as diminished inspiratory expansion and flattening of the infraclavicular region on the affected side, wasting of the shoulder-girdle muscles noticeable especially at the back, slight thinning of the skin, to which particular attention has been called by Dr. Clarence Wheaton of this city, and general loss of weight and pallor. Subordinate as these are to changes found by percussion and auscultation, they yet offer corroborative testimony and hence should be looked for in completing the chest examination.

There now remain the constitutional effects of the infection, which are phenomena of protein absorption and make up the symptomatology in contradistinction to the physical signs that have been thus briefly considered.

Of these constitutional manifestations of the disease elevation of body temperature seems to me the most significant and yet even this cannot be taken by itself as diagnostic. Fever, like

cough and acceleration of the pulse may be a symptom of so many non-tuberculous conditions that it must be regarded as only one, though an important one of several manifestations which combined make up the sum-total of diagnostic data. The really significant feature about the pyrexia of incipient pulmonary tuberculosis is its constancy within quite narrow limits. Its range is as a rule between 99.5 F. and 100.5 F., although this may be modified by exercise and physical disturbances, and, as every one knows, the thermometer usually registers higher in the afternoon or early evening. It may be remittent in the early morning but so long as the lung is not breaking down the temperature does not show marked and abrupt fluctuations. Moreover in this incipient stage the individual rarely complains of chills. Indeed, he may not be conscious that he has any fever. As the disease progresses, however, he becomes conscious of a sensation of heat in the afternoon or evening. In some cases nocturnal subsidence of fever is accompanied by more or less perspiration, but profuse sweating usually attends the more advanced stage of the disease.

Tachycardia is generally present at this time but there are no exact figures that may be given as in the case of the temperature. In many of these individuals there is a pronounced nervo-vascular excitability termed erethism which sends up the pulse to 120 or over upon such disturbing conditions as the physical examination. Yet even at rest, both physically and mentally, the heart's rate is unduly rapid and out of proportion to the degree of pyrexia.

It goes without saying that the heart is generally found to evince no signs of disease, but the blood pressure is lower than normal as a rule. Occasionally an individual is encountered in whom the blood pressure is normal or even somewhat higher than normal, but as a general proposition it may be stated that hypotension may be taken in association with other suspicious data as corroborative of the diagnosis of pulmonary tuberculosis in this early period of the disease when diagnosis is often very difficult.

With most practitioners it has become almost a routine practice to make a blood examination in cases displaying an elevation of body temperature and hence it is well to do so in suspected pulmonary tuberculosis. This may be of some assistance in arriving at a diagnosis, but blood changes are not so pronounced or characteristic as was formerly thought by me. The pallor so usually conspicuous in this disease, even in an early stage, is found to bespeak less anemia than might be supposed. In most instances there is a reduction in the hemoglobin out of proportion to the decrease in red cells and hence there is said to be a chlorosis or pseudo-chlorosis in pulmonary tuberculosis. This of itself is, however, of very slight significance since among city dwellers chloro-anemia is not at all uncommon. Of rather more value, perhaps, is a count of the leucocytes and yet even this is not always as helpful as I once believed. Formerly it was my opinion that a leucopenia rather than a leucocytosis existed in the incipient stage, but the view now generally held is that the white cells are about normal or are slightly increased, numbering around ten to twelve thousand. If they are much in excess of these figures they are held to indicate an added infection or some other non-tuberculous infection provided lung findings are indefinite. In this connection it should be stated that Arneth's studies show not only an increase of the polymorphonuclear elements but a relative excess in those neutrophyles which contain one and two nuclei rather than more. On the whole, therefore, it may be said that the examination of the blood is of very minor although of some importance in the very early diagnosis of this disease.

Cough is probably the symptom which oftenest arouses suspicion on the part of the physician as well as of the patient or friends. This is so commonly a result of irritation within the throat or even nares and may be a symptom of so many other conditions that taken by itself and apart from loss of weight and strength, etc., I must confess that until careful investigation of all other possible causes has convinced me of their absence I am slow to regard cough as an indication of lung tuberculosis. It is quite another thing, however, when the individual has expectorated blood or admits decline in strength and weight. Cough is, of course, an early symptom and may very justly arouse apprehension, but the point I wish to make is that it must be supported by other data before it should be regarded as diagnostic in the incipiency of which I am now speaking.

Loss of weight is often a very early symptom and may precede the development or recognition

of other constitutional effects and in a person with a history of exposure to the infection should arouse suspicion and lead to a careful examination. But habitual under-weight, although suggestive of latent tuberculosis is sometimes a family characteristic and may exist without any discoverable evidence of the disease in question.

No single symptom in the stage of closed tuberculosis when tubercle bacilli are absent is sufficient for a diagnosis of pulmonary tuberculosis. It is the combination of several symptoms together with physical signs in the lungs that enables the physician to arrive at a definite conclusion. Therefore decline in weight and strength, slight cough even if without expectoration, daily rise in temperature, acceleration of the pulse, possible hypotension, pallor with perhaps slight increase of the leucocytes and at one apex faint loss of resonance and roughness of the inspiratory murmur over the area of impairment, all these would almost certainly make for latent or incipient pulmonary tuberculosis. Yet not all of these data may coexist and when physical signs are equivocal one may and should resort to tuberculin or the Roentgen-ray. A positive skin reaction would be conclusive, but a single negative test should be regarded with reserve and lead to further observation and a repetition of the skin test or to the hypodermic administration of tuberculin.

As regards the disclosures of the x-ray it may be said that other conditions than tubercular deposits may impede the passage of the ray. Yet should the fluoroscope or skiagraph reveal scattered deposits over a circumscribed area at an apex where suspicious physical signs exist, it will if certain constitutional symptoms exist serve to render conclusive the diagnosis of lung tuberculosis.

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## WHAT CONSTITUTES A PROPER CARBOHYDRATE AND PROTEIN DIET IN THE TREATMENT OF THE TUBERCULOUS.*

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To bring about an arrest of the tuberculous process, to restore the tuberculous individual to his former self and to make him again an efficient working unit requires the co-ordination and harmonizing of four essential and indispensable factors, namely, (1) an abundance of fresh air and out-of-door life, (2) sufficient rest, to conserve body energy, improve the appetite, lessen waste and favor repair, (3) the great psychological element, ease of mind, and (4) a wholesome nutritious diet, commensurate to the patient's physical condition necessary to repair the daily waste and to improve both body and mind. We will now consider a little more in detail this fourth factor, particularly its relation to food intake, tissue metabolism and waste output. In taking care of a tuberculous person we are usually very particular in giving instructions for out-of-door sleeping and living, the open window treatment, for much rest in the recumbent position, to take all the rest possible, not to worry, to take things easy, above all to take the prescribed medicine with religious regularity. In the giving of these rules we are very precise but somewhat hazy and indefinite when we give instructions as to diet. The patient is generally told to eat many eggs, to drink much milk, to eat much fat, butter, bacon, oils, eat all you can; it is eat, eat, eat, but not how to eat, what to eat, when to eat. It is hardly necessary to state that for the arrest of the tuberculous process the factor of diet is by far the most important, this fact has always been recognized ever since it has been shown that tuberculosis is a curable disease. Tuberculosis, as you know, is found in all walks of life, from very early infancy up to ripe old age, but it is more especially a disease of young adults and in these various conditions and ages a properly suited and regulated regime will result in more good than to feed young and old, febrile and afebrile, acute and chronic, active and passive, children and adults the same daily rations, the same stereotyped food.

It is much to be deplored that concerning the question of diet there still exists so great a diversity of opinion. Dietitians at many of the tuberculosis sanitaria of this and foreign countries, where ample facilities are offered to make a thorough study of this question, show a most extreme variation in the dietary regime and are not by any means a unit.

Let us take a hasty survey of the average daily dietetic table which is usually given as being

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ample to comfortably maintain the balance between carbohydrate, fat and protein metabolism in the healthy, and then let us compare that with the various diet lists in use at different native and foreign sanitaria.

It has been estimated that the normal requirements of protein, fat and carbohydrate intake for a healthy individual weighing about 150 pounds and while at rest, approximate close to 3,000 calories per day; for light work it may be increased to 3,500.

Proteins, 4 ounces (120 grams) equals 480 calories.

Fats, 2 ounces (60 grams) equals 540 calories.

Carbohydrate, 17 ounces (500 grams) equals 2,000 calories.

Total, 3,020 calories.

Now in looking over the diet list of 19 sanitaria we find a variation in calories from 5,500 the extreme of one to 2,140 in the opposite direction. The carbohydrate intake in one is given as 2,100 while in another 560 calories satisfies, fat in one 2,200 calories against 820 in another and protein is given at one in 1,200 calories while another is satisfied with a daily intake of only 370.

In comparing these different dietary tables it is hardly conceivable that on the one hand, with a large intake of carbohydrates, fats and proteins representing a high calorie value, and on the other given only about half that amount with low calorie units, one being typical of overfeeding and the other of underfeeding, that the tuberculous individual's chances for the arrest of his diseased process can be alike.

It is true that in a healthy individual the usual daily protein intake is generally sufficient to maintain the balance between tissue metabolism, between waste and repair, and perfect health may even be sustained over long periods of time by subsisting on a diet consisting of food of very low nitrogenous elements, but it is vastly different in individuals suffering from pulmonary or from any other forms of tuberculosis where tissue waste is out of all proportion to the normal.

You are all familiar with the prognostically different picture of pulmonary tuberculosis in the young and in the old. In youth, mainly between the ages of 10 and 25 tuberculosis often assumes a malignancy, running a rapid, a progressively down-hill course, while on the other hand as the tuberculous individual reaches the age of 35 and beyond the disease usually assumes a slow, a more mild, a more benign form. Tuberculosis is a distinctly lymphoid disease, and the tubercle bacilli flourish most luxuriantly upon this most favorable nutrient soil. It is for this reason that the bacilli grow and multiply with great toxin production in the young in which lymphoid tissue is usually so abundant, finding it a most propitious soil for their growth, while in advanced life, when fibroid tissue is beginning to or is already predominating, a less nutrient soil is not so favorable for the growth and development of the bacilli, in consequence of which toxin production is held at a very low point, the disease usually following a very slow and quiet course. Another very important reason why tuberculosis assumes a more malignant form in the young man than in the old may undoubtedly be found in the vast difference existing between the nitrogenous output of youth and the aged. In the young, protein metabolism usually reaches its highest point; the burning-out process of nitrogenous material is almost complete resulting in the formation of urea as its terminal or end product. With advancing age the process of nitrogenous metabolism does not reach so high a point, does not fully obtain to the formation of urea, terminating in the formation of uric acid. But uric acid, the end product of protein catabolism, has been proven to inhibit the progress of the tuberculous process and very materially to influence the growth of the tubercle bacillus, but in the formation of uric acid, fats and carbohydrates take no part; it is nitrogenous materials, albuminoids and proteins alone that can be utilized.

In treating a great number of cases of pulmonary tuberculosis it is not surprising to find as a complication very frequently an accompanying diabetes mellitus usually running a very rapid course and though the diabetes predisposes to tuberculosis, tuberculosis as a rule does not predispose to diabetes. Sugar as a normal constituent of the blood as a glycemia, is found in most healthy individuals in proportion to 0.06 to 0.1 per cent and many most careful and accurate observers have demonstrated that in the tuberculous there is a strong tendency to an increase of blood sugar, a true hyperglycemia. Now very

exact experimental research has also demonstrated that media containing glucose form a most favorable nutrient soil for the growth of the tubercle bacillus and such a conducive soil is usually to be found in the tuberculous organism when the blood sugar is above the normal, when a hyperglycemia is present, besides, this excess of circulating sugar has a very detrimental effect in the lowered body resistance. A hyperglycemia occurs quite frequently in pulmonary and in many of the other forms of tuberculosis, particularly in the presence of high fever and it has been estimated that it is present in over 50 per cent of all cases. The presence of sugar in the blood over the normal amount, is well known to greatly favor the production of urea and not of uric acid. (Tuberculosis and diabetes have another point in common, the favorable influence of the diseased process by an increase of the urates in the urine.)

Another fact has long been recognized by the profession, namely, that diabetes and gout have a directly opposite influence on the tuberculous process, that while diabetes favors and accelerates this condition and the growth of bacilli, gout shows distinctly an inhibiting influence on the disease. The different effects of diabetes and gout on the growth of the tubercle bacillus has been clearly demonstrated by inoculating glycerinagar bouillon cultures in separate tubes, to one of which had been added blood from a diabetic and to another that obtained from a gouty patient, with live virulent tubercle bacilli of the human type. This experiment showed conclusively a most vigorous and luxuriant growth in the tube containing diabetic blood but the tube on the other hand to which the blood from a gouty person had been added showed a perceptible retardation and inhibition of bacillary development. That protein metabolism has a positively inhibiting influence on the pathogenis of tuberculosis has been repeatedly demonstrated by feeding infected guinea pigs large quantities of nitrogenous food when it was observed that they develop a greater resistance against the progress of the disease than is noticeable in control animals, carbohydrate metabolism on the other hand hastens the tuberculous process, the disease running a more severe and rapid course, and guinea pigs fed on sugar succumb earlier to the disease than the non-sugar-fed control animals.

Tuberculosis is often spoken of as the disease of the poorer classes and that generally is attributed to living in close quarters and to a lack of fresh air, yet in the small cities, in villages and even in the country districts where fresh air is very abundant and most inhabitants live much out of doors, tuberculosis, per capita, is quite as prevalent as in the larger cities and the cause of this can usually be referred to the large carbohydrate intake. In villages, in the country and the poorer districts of the cities it will be found that carbohydrates, like sugar, bread, potatoes, molasses, cereals, etc., constitute the chief articles of diet, meats are but little consumed and other animal proteins in the form of eggs and possibly milk are occasionally used. Among the richer classes, so-called better informed and instructed, who are consuming much proteid in the form of meats, eggs, fish, cheese, milk and such articles of diet rich in vegetable protein as beans, peas, lentils, etc., show a stronger tendency to lessen both the tuberculous morbidity and mortality. Comparative pathology, as you all know, has long taught that meat eaters seldom succumb to tuberculosis.

In this connection it may not be irrelevant to direct attention to a very interesting point in this tuberculosis problem, namely, the relation of tuberculosis to pregnancy. Recently in a most interesting address before the Robert Koch society of this city, two leading obstetricians and gynecologists clearly pointed out that during the child-bearing period, that is between the ages of 15 to 45, if pregnancy is complicated by tuberculosis, that the death rate in the young pregnant women is very much greater than when the same complication exists in women of more mature years, and that the patient's chances for arrest and cure of the tuberculous process are very much better the closer the pregnancy occurs towards the menopause. These facts can be greatly accounted for by the variations in the carbohydrate and protein intake during these different ages. We notice, for instance, that in the younger women the tuberculous process usually pursues a more rapid course, the pulse rate is somewhat faster, fever is generally high (heart fast), etc., but above all will it be observed that the diet consists chiefly of carbo-

hydrates and candies, cakes, sugar, molasses, ice cream, sweets, etc., constitute her chief articles of food. (As has been pointed out above, the excess of carbohydrate in the tuberculous, especially with high fever, tends to the production of blood sugar, a hyperglycemia, furnishing thereby a most favorable nutrient soil for bacillary growth and extension of the diseased process, at the same time an increase of nitrogenous waste material bringing about the production of urea as its end product.) On the other hand we see that in the elderly pregnant the disease is usually not so active, usually pursuing a milder course, but most particularly we observe that with mature age there usually comes a complete dietary change and carbohydrates now give way to fats and proteins either vegetable or animal, and in place of sweets as in former years she now yearns for rye bread, wheat bread, all containing a high protein constituent. Meats, fish, eggs, cheese, milk and cream, nuts, beans, peas, etc., constitute her chief meals, all of which tend to make body energy, storing up in the blood, not sugar, a good nutrient material, but the product of incomplete nitrogenous metabolism, uric acid, which is most unfavorable to bacillary growth.

It is a well-known truism in practical medicine that arthritic, rheumatic and podagric patients extremely seldom suffer from pulmonary tuberculosis, whereas diabetics very frequently succumb to the disease and this is most likely because in the organism of the former there exist a poorly specialized soil for the growth of the tubercle bacillus while in the latter highly favorable media are present. Now, in the treatment of rheumatism and gout, rest, chiefly compulsory, constitutes the principal therapy. The main influence of the rest cure on the tuberculous is the instituting of an artificial gout treatment, rest and quiet. We all know that this is a great factor in arresting the tuberculous process, for it favors the assimilation of food, lessens the loss of vital energy, conserves body strength, slows the action of the heart, lowers body heat and gives rest to both body and mind; in addition, it greatly favors the production of uric acid and if to the rest treatment a sufficient protein diet be added the ideal conditions which favor the arrest of the tuberculous process are given, conditions which supply a poorly nutrient soil for bacillary growth. A noted phthisiotherapeutist once stated that it would be a great blessing of every tuberculous patient could be made arthritic or gouty; moreover the favorable influence of the tuberculous process in the rheumatic and gouty diathesis may be directly traceable to an increase of the uric acid content in the urine (and then again the gouty is usually advanced in life when uric acid is the usual end product).

In order to outline a proper dietetic course, to estimate the necessary food values for each case, it will be indispensable to individualize and make a thorough study of each patient's needs. Every patient's requirements in carbohydrates, fats and proteins ought to be most carefully ascertained, so that the daily amount of intake does not exceed the individual's tolerance and proteins should constitute a fair proportion of this advised diet but not more than the organism can take care of.

In the treatment of tuberculosis it may often become necessary, in order to supply the immediate wants of the economy, to increase the nitrogenous element but in many instances it requires a great deal of good judgment, not to go beyond the patient's protein tolerance. Nitrogenous food intake relative to tissue metabolism has been given very much attention but the over intake, that over and above the necessary tissue waste and repair, has not received the observation it desires. Too much protein intake causes either too much renal work or the unutilized nitrogenous material may be the cause of intestinal putrefaction and disturbances, followed by toxin absorption; hence a wholesome and generous diet, consisting of carbohydrates, fats and proteins, in such varying proportions, in amounts sufficient and suitable, just like the patient enjoyed when he was still in perfect health, will be found the most serviceable and appropriate in his diseased condition. It should be allowed with the same regularity and prescribed intervals as in health, at meal times only, giving nothing between meals. Thanks to a better understanding of the underlying principles which govern the processes of this disease, the pendulum has swung back and forced or over feeding and stuffing is now obsolete, but we must be guarded not to go to the opposite extreme and advocate underfeeding as the panacea in the tuberculosis problem. In the dietetic treatment particular

attention must be paid to the conservation of the digestive integrity of the stomach and intestinal tract, constantly bearing in mind that in health the gastro-intestinal organs offer the greatest protection against diseases of the lungs and that the digestive apparatus also offers the first aid and is chiefly to be relied upon when the lungs are diseased.

Therapeutically then it may be stated that an increase of nitrogenous material in the diet of the tuberculous may be of undoubted value but we must not lose sight of the fact that this must be kept within the patient's albumin tolerance, that a high protein diet over and above that used in tissue metabolism may cause in the intestines a rapid bacillary increase, intestinal putrefaction with toxin production and toxin absorption, and that this intestinal autointoxication is usually proportional to the nitrogenous intake.

25 East Washington street.

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## TUBERCULOSIS OF THE LARYNX.*

J. HOLINGER, M. D.,
CHICAGO.

The pathology of laryngeal tuberculosis, the symptoms, the course, the prognosis and therapy depend mainly on the general condition of the patient, particularly on the condition of his lungs. It is, however, questionable whether we are justified in considering it under all circumstances as a secondary disease to tuberculosis of the lungs; in other words, there are few, if any, cases known where the lungs were free from tuberculosis and remained so. In 1902 and 1903 I observed such a patient, whose larynx suffered from microscopically diagnosed tuberculosis, yet he had no fever, no dullness or rales over his lungs, no bacilli in his sputum; in other words, in whom at the time no affection of the lungs could be diagnosed. Yet in 1905 he died of a very fast progressing tuberculosis of the lungs. His larynx remained cured to the end. The only case of apparently primary tuberculosis of the larynx observed by the writer took such a course later on as to make it highly probable that an undiagnosed and undiagnosable focus of the disease existed at the time of observation.

In the large number of cases with fair general condition and slowly progressing or even stationary tubercular disease of the lungs, the symptoms of hoarseness and pain in swallowing are well known. Not so well known is the changeability of these symptoms, so that for days and weeks they seem to be entirely absent, so that the patient and the doctor think the disease cured. An examination reveals the great extent and destruction caused by the disease. This is a warning that the larynx of tubercular patients ought to be examined much oftener. Early discovered lesions give a better prognosis and better results of treatment. Furthermore, it is a fact that the elimination of a focus in the larynx has a good influence on the course of the lung trouble.

The diagnosis is usually not difficult. The subjective symptoms are pronounced. The objective examination by direct and indirect laryngoscopy reveals the swellings or ulcerations, which may be found extending over the whole of the larynx, or, more frequently, over certain parts, the rear margin of the entrance of the larynx, or over the vocal cords, the epiglottis, or the space below the glottis. The sequence with which the localities of predilection are named is of importance. In the first place, the rear margin of the entrance of the larynx is given. Infiltrations of this part were often found when all the other parts of the larynx were free. Swellings of this part were also found combined with affections of other parts, for example, of the vocal cords. Whenever, in such a case, the question of differential diagnosis from syphilis or carcinoma comes up, the infiltration of the rear part of the margin of the entrance of the larynx speaks in favor of laryngeal tuberculosis. This point is so much more valuable as it will be found to hold good, especially, in early cases, when the differential diagnosis is often at the same time difficult and important. Of course, the other means of diagnosis, von Pirquet's test, Wassermann's test, microscopical examination, must not be neglected.

To illustrate some unusual features, the following history is given:

Mr. Z., fifty-eight years, has lost several brothers and sisters from consumption. He is not very tall or strong. He has been hoarse the past year, absolutely aphonic for five months, and has complained during the last two weeks of difficulty in breathing.

*Read before the Chicago Laryngological and Otological Society, November 11, 1914.

Otherwise, he feels perfectly well, and has not lost a day in years from his business. Examination of the larynx was easily performed and showed the cavity of the larynx concentrically narrowed to the size of a thin pencil, by a hard swelling of the whole wall. The vocal cords could not be seen. The walls were irregular, and of the same color as the pharynx—pale pink. The microscopic examination of a piece of the wall gave the diagnosis of inflammatory new formation. This finding was unsatisfactory. A larger excision with a Landgraf double curette was pronounced typical carcinoma by another pathologist. At the same time the condition of the patient improved under kalium iodid. Another specimen finally was pronounced tuberculosis, with scant but unmistakable tubercles. The wound left by the different excisions healed promptly and completely. Therefore, the curette was used freely on both sides, and on the rear wall, until the normal width of the larynx was reached. The vocal cords were normal as to color and configuration, the left one slightly paralyzed, but the voice at once became clearer. The patient made a quick recovery and was well for several years; then he developed tuberculosis of the lungs. The voice remained clear up to a week before death, according to information from his daughter.

The first point of interest to me was the finding of a large fibrous tubercular tumor of the larynx, whose walls were so thickened by a hard swelling as to have an opening of only the size of a small pencil, causing dyspnea. The second point concerns the prognosis and the therapy. The patient's larynx remained well after the excision up to within a few days before his death.

The prognosis of tubercular laryngitis depends entirely upon the condition of the lungs. It is good if the disease of the lungs either improves or at least does not progress; for example, a teacher whom I saw first in 1898—absolutely aphonic, with swellings of her arytenoid cartilages, and red, swollen, partly paralyzed, vocal cords, has been teaching ever since about three months after I saw her. Other similar cases might be mentioned.

In the therapy the first requirement is absolute rest of the larynx. The patient is not allowed to talk a word. Great improvement and even cures have been noted from this agent alone. Precautions ought to be taken that the psychic effect, the depression, does not become too great. In special sanatoria this can be done more easily and more effectively. Unfortunately, few of them are available to the middle and lower classes. Germany has found ways to overcome this difficulty. The results are correspondingly better. Local applications of lactic acid, 30 per cent., 50 per cent. and 75 per cent., are often of benefit, if the patient is willing to submit to the pain and discomfort they involve. At the same time, the pharyngitis which is always present must not be overlooked.

Different forms of the galvano-cautery, the simple stab-cautery or the multiple cautery, also give very good results. In extensive applications of this agent the reaction is often quite considerable. A certain reluctance to use the knife and the curette was felt, dating undoubtedly from the time before the cocaine and adrenaline. In 1913 Arnoldson[1] published a strong appeal in favor of the simple surgical methods of dealing with the different swellings. My experience in the above described case, and in others, spoke certainly in favor of this advice. The advantages are numerous. First, there is comparatively little hemorrhage, and the reaction which is often quite serious after extensive cautery is entirely absent. The young lady whom you saw tonight came to me absolutely aphonic. The epiglottis was at least one centimeter in thickness. I amputated the epiglottis two weeks ago—on a Saturday. On the Monday after that operation she went to work again. Her voice began to improve at once though the larynx is not quite well.

Whether direct or indirect laryngoscopy is preferable is a matter of taste. Direct laryngoscopy gives better access to the diseased parts; indirect is easier on the patient, which advantage must not be under-estimated in patients who are so easily affected by psychic influences.

An important point is finally the overcoming of the difficulty in swallowing, which often occurs in the later stages of the disease. The question is of great importance, as many patients do not eat because swallowing hurts them so much that they avoid it at all costs. The consequence is that they lose weight and ground very fast. The simplest means by which to overcome this is by the use of the narcotics and local anesthetics—morphin, cocain, orthoform, anesthesin, and nerve-blocking. Morphin, cocain, orthoform and anesthesin have certainly all some influence on the heart, which is absent in nerve-blocking. Nerve-blocking consists in the injection of alcohol in the vicinity of the superior laryngeal nerve. Since the procedure is very

[1]Arch. f. Laryn., XXVII.

simple, it must be recommended in preference to the narcotics and local anesthetics. But under all circumstances we must not forget that all this will not have any curative effect. If we do not at the same time apply any local surgical measures, we simply keep busy doing nothing for our patient.

External surgical measures, tracheotomy and laryngo-fissure have both been used by the writer in a few cases. They invariably leave the patient in a much worse condition than he was before, either generally or locally, often both. Even laryngectomy was advised by some authors. Whether the life of these patients is prolonged thereby, I do not know; surely their sufferings are. Whether radium, x-rays and sun-rays will accomplish all that is claimed is questionable; we are inclined to expect more of the things we do not know anything about. The well-known surgical procedures have the advantage that we know what we are doing. It is true, they require experience in the diagnosis, and skill in their performance, but those are qualities that we can and have to acquire.

5 North Wabash avenue.

DISCUSSION.

Dr. O. J. Stein wanted to take exception to the statement that external surgical procedures—and the essayist mentioned laryngo-fissure—are objectionable. He feels that there is a field for this operation; that well-defined local tumefactions of a tubercular character can be eradicated, and the probabilities of a dissemination of the disease in the larynx, or possibly elsewhere, can be mitigated.

In this connection he wanted to ask if any of the members had had any experience in the use of tuberculin locally in the larynx. He has tried it a few times, but was not in a position to give a report of them at this time.

Dr. E. P. Norcross thinks there is a very pessimistic opinion held as to the curability of laryngeal tuberculosis. This may be due to the great variation in statistics dealing with the frequency of this complication of pulmonary tuberculosis. The speaker thinks that if the cases were all examined carefully, in the same way that we are taught to recognize early changes in the lung, the percentage of cases of consumptives having tubercular laryngitis would be greatly augmented, and naturally, then, the percentage of cures would also be augmented. One cannot help but believe that there are many cases of tubercular laryngitis never diagnosed that heal spontaneously, just the same as the lung trouble may heal.

Dr. O. T. Freer agreed with Dr. Holinger concerning the uselessness of external operations in most cases of laryngeal tuberculosis. This is the conclusion of Dr. Nils Arnoldson, of Stockholm, who has made an exhaustive study of the matter. He says (*Archiv für Laryngologie*, 1913, page 46): "In the literature of later years little belief is expressed in the possibility of material benefit from the external operations, least of all from total extirpation of the larynx." Gluck, quoted in Arnoldson's article, however, advises external operation where all of the tubercular disease may be extirpated by it, and states that in many cases laryngeal tuberculosis is merely an active focus of localized tuberculosis.

Undue optimism in regard to recoveries obtained by endolaryngeal surgery must also be avoided. Where a tubercular focus may be excised with uninfected tissue about it, as in the case of tuberculosis of the epiglottis confined to the periphery of its free, pharyngeal portion, a permanent cure may be obtained. But where the disease has entered into the tissues of the body of the larynx itself, as in ulcers of the cords, ary-epiglottic folds, ventricular bands, and especially where there is tubercular, infiltrative chronic edema or perichondritis, complete extirpation by endolaryngeal cutting operations is impossible, for there are always miliary foci scattered far about the main seat of the disease, which lie in apparently healthy tissue, and which reproduce the tubercular process. This may be seen especially well in nasal tuberculosis, where an apparent complete removal of the tubercular focus is so easy, for in spite of such removal a return of the disease is the rule.

Dr. Freer agreed emphatically with Dr. Holinger that laryngeal tuberculosis is often primary. There never has been proof advanced for the often repeated assertion in the text-books that laryngeal tuberculosis always follows pulmonary tuberculosis, and is evidence that a pulmonary focus exists. Dr. Freer always examines the chest in cases of laryngeal tuberculosis, and has often, even in advanced cases, failed to find any sign of pulmonary disease. To assert that, nevertheless, a primary pulmonary focus must be there simply because there is laryngeal tuberculosis is merely an unproved dogmatic statement. Later, of course, the lung nearly always becomes infected with tuberculosis in the form of aspiration tuberculosis.

Dr. L. E. Gordon's experience in operative procedures upon tubercular patients has been limited to those for correction of deformities in the nose and throat. He has seen a number of cases that were on the sanatorium waiting list clear up after degenerated tonsils were taken out, deformities in the septum or turbinal bones corrected, and this observation has led him to the conclusion that the larynx is not very susceptible to invasion from the lungs, provided the upper respiratory passages are normal.

Dr. E. L. Kenyon is inclined to think that the laryngologist does not apply the same intelligence to the examination of these cases of tubercular laryngitis as the internist does to the pulmonary condition. The attitude of the physician treating pulmonary tuberculosis is largely the attitude of prophylaxis. He says: "Attack the tuberculosis of the lungs before the

lungs are attacked with the tuberculosis, as it were. In other words, so treat your patient as to increase his resistance. The speaker believes that laryngeal tuberculosis as a primary proposition is extremely rare, because he believes that the conditions necessary to produce tubercular laryngitis are exceedingly rare excepting in connection with pulmonary tuberculosis. In cases of pulmonary tuberculosis, one is able to watch the development of laryngeal tuberculosis if he watches the larynx. Not only that, but he is able to see the conditions in the larynx which predispose to pulmonary tuberculosis. He sees the local laryngitis which is tending to result in abrasions of the mucous membrane, in which abrasions the tubercle bacilli become engrafted. The time will come, in the opinion of the speaker, when laryngologists will examine every pulmonary tuberculous patient systematically for trouble in the larynx, not once in six months, or once in a long period, but as an essential part of the treatment of the pulmonary condition as frequently as necessary. Watch will be kept of the larynx, and primary disturbances will be treated with the purpose of avoiding laryngeal tuberculosis. That will be the advanced future attitude of the laryngologist in reference to laryngeal tuberculosis.

Dr. Kenyon feels that cough is a primal factor in the development of laryngeal tuberculosis, because cough involves the most violent action we have in the larynx, and it is this violent action in the larynx, taken with a chronic laryngitis, that he feels is responsible to a great extent for the infection of the larynx with the tubercle bacillus.

Dr. H. Kahn said that one point to be considered in the surgical interference in laryngeal tuberculosis is whether the condition is one of open or closed tuberculosis. Surgical interference in laryngeal tuberculosis where there is temperature is absolutely contraindicated. That is the real crux of the situation. When temperature is present, only palliative measures are indicated. Regarding external operations, Hajek, in the *Medicinische Klinik*, 1912, page 385, has reported excellent results with tracheotomy. The larynx is placed absolutely at rest for a period of some length, and most of the cases recovered.

Dr. Holinger, in closing the discussion, said that he knew that his standpoint on the question of laryngo-fissure was not shared by all members, but all his cases operated on by laryngo-fissure did not do at all well. The impression he received was that the excitement of the operation and after-treatment pulled the patient down.

The speaker noticed that he had been misunderstood by Dr. Norcross. He said that, on the whole, the prognosis of laryngeal tuberculosis is good. The main point is early diagnosis. Dr. Norcross spoke about early examinations—not only early, but regular examinations of the larynx of consumptives. The speaker has been many times in a very disagreeable position, when patients suffering from tuberculosis of the lungs came and complained about their larynx. Their physician contended that the hoarseness, etc., amounted to nothing, and did not need special attention. Add to that the changeability of the symptoms, the patients sometimes having absolutely no symptoms for weeks. What should the specialist say and do when suddenly bad laryngeal symptoms appear? Is it his duty then to protect the general practitioner before the patient? How is he going to justify serious therapeutic measures before the patient?

As to the frequency of diseases of the nose in tuberculosis of the lungs, it is text-book knowledge that tuberculosis of the lungs and larynx is three and four times more frequent in patients who have irregularities in the nose than in those with normal noses.

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## TUBERCULIN IN DIAGNOSIS AND TREATMENT.*

Moss Maxey, M. D.,
MT. VERNON, ILL.

From time immemorial tuberculosis has been considered a universal plague. Centuries ago Hippocrates remarked, "the most dangerous disease and the one that proved most fatal to the greatest number was consumption," and since then physicians of all times have had to contend with the white plague. Probably the first successful attempt at scientific treatment of the disease was made by Brehmer, who founded an institution at Goebersdorf in 1859. Before that time Bodington, an English physician, had attempted to practice the fresh air treatment in an institution he established, but his efforts met with failure and his institution was turned into an insane asylum.

It remained for Koch to discover the specific cause of tuberculosis and his announcement in 1882 of the discovery of the tubercle bacilli, threw a great light on a hitherto baffling disease. With the discovery of its cause, Koch at once set about the discovery of a cure, and when in 1890 he announced to the world that he had found a cure, people were overjoyed, for with an annual toll of 150,000 deaths in the United States alone, to its credit, tuberculosis had become a serious problem. But years of experiment were necessary to perfect the use of the remedy. The disastrous results which followed its early and unskilled use caused tuberculin to fall into disrepute. Patients far advanced were given large doses and the violent reactions which followed, created a prejudice against the remedy

*Read before the Jefferson County Medical Society.

which bade fair to submerge it in oblivion. Had it not been for a few men like Von Ruck and Trudeau, who kept steadily on with their experiments, there is no doubt that tuberculin would have been pronounced impracticable.

In giving my experience with tuberculin I must state that for both diagnostic and therapeutic measures I use Koch's Old Tuberculin, made by Lucius & Bruning, and make the dilutions as I need them. The value of tuberculin in diagnosis is no longer questioned. With its aid many cases of so-called stomach trouble, bronchitis, colds, etc., have been found out in time and many lives saved when a false diagnosis would have caused delay—and delay would have meant death. It is no longer necessary to wait until the hectic cheek and the hacking cough appear, to make a diagnosis. By a tuberculin test, tuberculosis can be discovered and treated at a time when it is most easily cured. In fact, early and accurate diagnosis is one of the essential factors in the successful treatment of the disease, for in its incipiency, tuberculosis yields readily to proper treatment and really offers more hope of cure than some of the other chronic diseases which are usually considered less fatal.

Patients who come complaining of being "run down," easily tired, weak and with no appetite, should be given a test dose of tuberculin, unless these symptoms can be ascribed to other troubles. These are the danger signals, and a correct diagnosis at this time means everything to the patient. With every week of delay, the patient's chance for recovery diminishes, and if we are going to treat tuberculosis at all, why not do it while everything is in our favor. Where there are no physical signs and only slight active symptoms, such as a slight rise of temperature each day, a tuberculin test will reveal whether or not these symptoms are tubercular, and a few months of treatment will usually serve to relieve the active symptoms.

For diagnostic purposes I prefer the subcutaneous test, as the Moro test is not absolutely reliable. I have also used the von Pirquet test on children, but as the object of the test is to get the tuberculin into the lymphatics, the most satisfactory means is by the subcutaneous test. The site of injection is usually the outer aspect of the arm, below the insertion of the deltoid muscle. For persons with apparently slight symptoms the diagnostic dose is 15 minims of tuberculin dilution 1-1000. If no reaction follows this injection, on the second day following, 5 minims of 1-100 may be given, and then if there is no reaction, 15 minims of 1-100 may be given two days later, in order to complete the diagnosis. If tuberculosis is present a reaction usually occurs, and if there is no reaction we may consider that the patient is not infected. Of course there are exceptions to this rule, as sometimes patients far advanced will fail to react. This is explained by the fact that the system is already immunized to some extent to the toxins found in tuberculin and to get a reaction from these patients a much larger dose than we are accustomed to giving, would be necessary. But in these far advanced cases, tuberculin is not necessary as a diagnostic measure.

The reaction from a test dose of tuberculin may be either local or general or both, and a diagnosis may be established from either. The local reaction occurs at the site of injection and is characterized by induration, and a red and tender area that varies in size. Should the area of the tubercular infection be visible, as the larnyx, the hyperemia and congestion resulting is quite apparent. On auscultation fine rales may be noted where none were to be found before, and all the physical signs will be exaggerated by the test. These conditions are modified by the size of the dose.

The general reaction, too, may be mild or severe. Usually, however, a few hours after the test dose is given there is a slight rise of temperature, the patient is nervous, chilly and complains of a tired feeling, heaviness of the limbs and general discomfort. These symptoms gradually disappear and the temperature returns to normal in 24 to 48 hours. Stronger reactions sometimes occur where the discomfort amounts to actual pain, where there is vomiting, chills and a very high temperature. Formerly a rise of at least two degrees in temperature was necessary before a reaction was recognized, but at present those who are most experienced, accept any symptoms which are unmistakably due to the test, as a reaction. Cases have been noted which were greatly benefited by a test dose and even a very severe reaction seems to do no lasting harm. The following case in my own experience illustrates this point:

A patient in whom no physical signs were found had been running a daily temperature of 99.6 to 100, with a pulse of 108 to 120. A test dose of 5 minims of 1-1000 was given. Within a few hours a violent reaction occurred, the temperature rising to 104, accompanied by marked chills and vomiting. The local reaction was very severe. At the end of three or four days the patient was able to be up, with apparently no ill effects, appetite greatly improved and for four weeks the temperature did not rise above normal. Treatment was begun and after a year and a half patient was discharged apparently cured, as all active symptoms had disappeared, there had been an increase in weight of about 20 pounds and 16 M. of 1-1 produced no reaction.

As a therapeutic measure, tuberculin if used properly is of the utmost value. It is not a poison as many suppose, for large doses may be given a healthy man without producing a reaction. Tuberculin is simply the same bacillary protein, produced artificially, that is given out by the focus of infection in a tubercular patient. This protein, or toxin of the tubercle bacillus, when introduced into the blood stream, produces two results. Its first action seems to be that of an immunizing agent, increasing the antibodies specific for the toxin which caused their elaboration. Its second action is that of a local stimulant to the infected area, causing more blood to flow to the part, and thus healing takes place more rapidly in a patient treated with tuberculin, as the blood, increased in opsonic power is brought in contact with the tubercular area, and formation of scar tissue thus facilitated. Of course tuberculin will not cure all cases of tuberculosis, nor will it remove cavities or restore tissue, but used in time, it will prevent these conditions and it is our duty to use it at a time when it does the most good. Neither is tuberculin treatment in itself a cure, for hygienic treatment also is essential to good results. Fresh air, good wholesome food, and regulated exercise are valuable aids and of equal importance in the treatment. This should be impressed on the patient in the beginning and he should understand that part of the responsibility of a cure rests upon his obeying the physician's orders in regard to these things.

Tuberculin treatment is usually begun with a small dose of tuberculin dilution 1-10000, unless the reaction from the test dose has been severe, in which case it may be necessary to begin with an even weaker dilution. Two injections a week are usually given, increasing from one to four drops each time, but always falling short of a reaction. The effect of each dose should be carefully noted and used as a guide in determining the next injection. Often after the first few doses the patient notices an improved appetite and an increase in weight, and if cough has been present it usually lessens. No rules can be given as to the length of time of treatment as that depends upon each patient's ability to stand the increased dosage, but in early cases where the dose can be increased rapidly, 8 to 10 months are required. If at the end of the treatment all physical signs and symptoms have disappeared and the patient has no reaction from 14 or 16 minims of 1-1, we may consider that his immunity has been brought to the highest point and the process arrested.

Patients whose daily temperature exceeds 100 or 101 should be put to bed and absolute rest insisted upon. Whether or not tuberculin should be given when fever is present has been a much discussed question, but if we know tuberculosis is present and that it is causing the fever, why should tuberculin be withheld when we know it relieves the tuberculous process? It has been my experience that with rest in bed and small doses of tuberculin administered regularly, fever can be controlled and often stopped entirely within a few months. Mixed infection is a complication often met with in cases that have passed the early stages. These cases are treated by the same means employed in the treatment of fever cases. Rest in bed, tuberculin and an autogenous vaccine will often give excellent results. The following case bears out this statement:

Patient presented herself for examination and I found one entire lung infiltrated, temperature running about 103, and general condition serious. As the temperature did not yield readily to tuberculin treatment mixed infection was suspected, and Dr. Gilmore was asked to make a vaccine, which he did. Following the third injection of the vaccine a severe reaction occurred, temperature rising to 104.4 accompanied by severe rigors. In four days the temperature dropped to 99.4 and during the remainder of the full course of treatment never went above that. At the time this patient was discharged the temperature was normal, lung had cleared up and there had been quite an increase in weight.

There is no doubt that tuberculosis of the genito-urinary tract is quite common, and that it is very often overlooked. I have seen several

cases of obscure cystitis, which had failed to yield to any ordinary treatment, show great improvement after a test dose of tuberculin. In kidney lesions that are tubercular it is of great benefit, and the urine will sometimes clear up remarkably after a few injections of tuberculin. It has been my experience to find so many obscure symptoms which would not yield to ordinary treatment, relieved by tuberculin treatment, that I am led to believe tuberculosis is far more common than we suppose, and that the focus of infection may vary widely.

During the past two years Dr. Gilmore and I have had under treatment about 175 patients, including patients in all stages of the disease. Of this number eight failed to complete the treatment, five (all in advanced stage), have died, and two that completed the treatment were unimproved. About forty of these patients are still under treatment, and the remainder have been discharged, apparently cured, as all symptoms had disappeared and 16 minims of 1-1 in each case, failed to produce reactions. These patients were given no medical treatment except tuberculin, but most of them have slept out of doors and followed out the usual hygienic regime. The gain in weight in each case has been from 10 to 40 pounds and several who began treatment while confined to bed are now able to resume their usual vocations. I have simply stated the facts of my experience with tuberculin, basing my statements on personal observation, and judging by the results noted in my own work, tuberculin has proven a valuable ally in the fight against tuberculosis, and I am led to believe that in the future, tuberculin will be one of the main factors in eliminating tuberculosis from the list of incurable diseases.

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## TREATMENT OF CARCINOMA OF THE UTERUS.*

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CHICAGO.

When asked to write a short paper on this subject I was relieved to find that I was expected to talk on the treatment and not the treatment for cure of carcinoma of the uterus.

It is a sad fact that notwithstanding all the research investigations and study applied to this one subject cancer is rapidly on the increase. Little or nothing has been learned of the causes of cancer and very little hope is offered by operative methods when the carcinoma is advanced to any appreciable extent.

The cases that come to the surgeon are in the majority of cases well advanced and we are absolutely helpless when it comes to offering such a patient a cure.

Cases might well be placed in two classes—operable and inoperable. Of the operable cases I would place all cases in which there is a mere suspicion of malignancy. These in my experience have all recovered. A certain portion of them have by repeated tests shown carcinomatous cells, some of them not.

At this point I would like to ask if other surgeons have had a like experience with mine. A case presenting for examination. The history shows they have been taking office treatments for several months until such advancement of the disease has taken place that a radical operation is hopeless and impossible. A sad state of affairs and not to the credit of the medical profession or such of them as will do such work.

In every Christian family there is at least one copy of the Bible. It has seemed to me that if a warning in plain terms, showing tre first symptoms of carcinoma could be pasted to the Bible it would enhance the value of the Holy Writ to a considerable extent.

It seems to be the opinion of all the writers I have consulted the only means we have at our command is the knife, cautery and scissors. How often we fail is hardly necessary to state here.

I present the histories of a few cases out of a considerable number.

Case 1. A woman several years past the menopause had a well marked hemorrhage; came to me and I advised an immediate hysterectomy, which was done. An uneventful recovery and remained perfectly well for ten years. I have no proof in this case of its being malignant.

Case 2. A woman aged 60, mother of a large family, called me to examine her and I found a carcinoma of the cervix, well advanced. In this case I used the curette and applied the calcium carbide, which produced an extensive slough, after which the tissues looked healthy and healed perfectly. She remained well for six or eight months, when it invaded the liver and she died some two or three months later.

Case 3. A woman aged 50 years; several children; carcinoma of the cervix. In this case I decided to do a hysterectomy, using nothing but the cautery knife.

*Read before the Englewood Branch, March 2, 1915.

Everything was apparently removed. Was followed by considerable sloughing, but finally healed perfectly and she remained well for about one year, when a metastasis occurred in the liver and she died a few months later.

Case 4. A woman, aged about 44 years; three children; not yet past the climar. Came to me for operation for a supposed cystic ovary and some tubal trouble. On opening the abdomen I found one-half of the cervix, from the inner os down to external os a board like hardness. And I decided to remove everything by combined vaginal and abdominal hysterectomy. Repeated slides were made from the cervix and other tissues and nothing of a malignant nature was found, but I am not at all sure that some nests were there and overlooked. She has made a fine recovery, but sufficient time has not elapsed to know if trouble will develop, but I am very hopeful.

I could report many more, enough to take up the whole evening, but these fairly show the type that comes to the surgeon for help. And will say in closing that for all those which I have placed in the suspicion class I do the radical operation.

In those well advanced I use the curette and the hot soldering iron, which has the effect of cleaning them up and, no doubt, delays the progress of the disease for some months.

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## DEFORMITIES OF THE NASAL SEPTUM AND THEIR CORRECTION.*

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CHICAGO.

This paper is intended to impress upon the general practitioner the importance of the early diagnosis and correction of deformities of the nasal septum. Before entering upon a discussion of the symptoms and diagnosis of the conditions involved, a brief description of the anatomical relations of the nasal septum is necessary.

The septum is composed of bone and cartilage. The bones entering into its formation are the perpendicular plate of the ethmoid bone which comprises almost all of its upper part. The perpendicular plate rests below and behind on the vomer and beyond this articulation projects forward to articulate with the nasal spine of the frontal bone and with the nasal bones.

Other bones entering into the formation of the septum are the frontal spine, resting on the vertical plate, and the crest made in front of this by the meeting of the nasal bones; the crest made by the two palate bones and the two maxillae where they meet and support the vomer; the rostrum of the sphenoid fitting in between the ethmoid and vomer for a little distance. The remaining part of the septum is formed by the septal cartilage which is somewhat quadrilateral in form, usually thicker at its margin than at its center and which completes the separation of nasal fossae in front. Its anterior superior margin, thickest above is connected from above downward with the nasal bones, the anterior margin of the two upper lateral cartilages and the inner portion of the two lower lateral cartilages. Its posterior superior margin is connected with the perpendicular lamella of the ethmoid, its posterior inferior margin with the vomer and the palate processes of the superior maxillary bones.

The anterior inferior free border is attached to the skin and supports the tip of the nose. The cartilage is frequently displaced and is sometimes referred to as the calumnar cartilage.

Almost every form of deflection from the sharp angular spur to the gradual sigmoid deflection involving the vomer and perpendicular plate of the ethmoid, gives rise to nasal stenosis. To determine the exact location and character of the nasal obstruction a systematic examination should be made of the anterior and posterior nares. The breathing should then be tested before and after adrenalin mucous membrane shrinkage by alternate insertion of a piece of cotton into each nostril, auscultation thus helping inspection to determine the degree of stenosis. A post rhinoscopic examination should now be made with the mirror to ascertain whether the posterior ends of the turbinates are hypertrophic, to observe the condition of the posterior end of the septum, the presence of polyps or adenoid growths. Since marked deflections of the septum are so often accompanied by a compensatory hypertrophy of the inferior turbinate of the opposite side, a thorough examination of both nostrils should be made after the application of adrenalin or cocain has caused the turbinate bodies to shrink and the pathological conditions are brought in view. It is well to mention here that the symptoms due to obstruction do not always correspond with the degree of nasal

*Read before the Douglas Park Branch of the Chicago Medical Society, March 16, 1915

stenosis present. Many patients with moderate stenosis have a disproportionate feeling of impending suffocation, especially at night. Headaches which are at first thought to be ocular in origin have disappeared after the removal of high deflections of the septum, which cause pressure upon the middle turbinate when it is even slightly swollen, but this condition as a cause of headache is easily overestimated. Again, a badly deflected septum may so obstruct nasal drainage as to perpetuate infection of the ethmoid and other nasal sinuses and so favor the development of nasal mucous polypi. One of the most constant symptoms of deflected septum is a persistent post-nasal discharge which is always worse in the morning, causing hawking and scraping and is occasionally accompanied by a chronic inflammation of the pharynx and sometimes of the larynx. Many reflex symptoms are caused by deflections of the septum sufficient to cause contact and pressure effects. There are cases of hyperesthetic rhinitis with excessive sneezing that have been helped and even cured by correction of the deflected septum. Operative measures are often indicated when a marked deflection of the septum prevents the passage of the eustachian catheter for the relief of tinnitus aurum. Constantly recurring coryzas, general anemia, stunted growth and other evidences of oxygen starvation are often the result of a nasal stenosis which is secondary to a badly deflected septum. I have dwelt at some length upon the bad effects of septal deformities because I believe that the general practitioner who is usually the first to see these cases, should be able to recognize the condition at the earliest possible moment. As to the methods in vogue for the correction of septal deformities, the saw operations and the Ash and Gleason methods have given place to the more thorough and scientific method of submucous resection of the septum. The technique is more complex but is based upon the correct principle of removal of the entire nasal obstruction with preservation of the mucous membrane. We recognize two distinct types or methods of performing the submucous operation, the buttonhole or slit method of Killian and the flap or open method of Freer. Both of these original methods have been modified by different operators and they have been combined in the same operation. Killian of Berlin has devised a method which consists in making a curved incision in the mucous membrane and elevating the mucous membrane by means of dull elevators.

The operation devised by Freer is executed by means of sharp cutting instruments through a reversed L-shaped flap in the mucous membrane. The technique employed in the flap operation for submucous resection of the septum is as follows:

The patient is placed on a table or chair in a semi-recumbent position. A dental chair which can be easily raised or lowered or changed to any position is recommended. The semi-recumbent position is being advocated more and more by rhinologists, because the patient is more comfortable, the head has a firmer support and the aid of an assistant to hold the head is dispensed with, while the operator has more control over his patient. As to the local anesthetic, cocain in the form of flakes or crystals together with adrenalin is used in all operations except in the case of very young children. When the operation is indicated just enough chloroform is given to keep the patient quiet. Owing to the danger from chloroform anesthesia, I would suggest the use of ether. In regard to the use of cocain I believe that there is less chance of ill effects from the drug used in its full strength than there is from that of the 10 or 20 per cent. solutions.

The weaker solution is more readily absorbed while the flakes or crystals, especially when used after the surface is thoroughly rubbed with adrenalin, so control the circulation that little is absorbed. It might be well to mention here that a good headlight is very essential for good work within the nose and the Kirstein electric headlight is the best in use at the present time.

The field of operation is prepared by removing any hairs within the nostril that might obstruct the field of vision or be the source of a possible subsequent infection. A cotton swab dipped in adrenalin and cocain is rubbed over the entire septum on both sides and this is repeated once or twice again after the initial incision has been made.

The primary incision is a horizontal cut through the mucous membrane and perichondrium along the base of the cartilaginous portion of the septum. A vertical incision is then made

in like manner, extending from the upper part of the septum downward to meet the horizontal incision. The convex side or side of the deflection is in most cases the side of election for operation. If a sharp vertical angle is met with in the cartilage in front the incision is usually made along the angle and is then continued forward along the floor of the nose or base of the cartilage to make a sufficiently large flap. The flap is now outlined and the elevation of the mucous membrane is begun at the horizontal incision, and as this is along the base of the cartilage, where the membrane is adherent, it requires sharp dissection. The white cartilage is easily recognized and when the flap is entirely elevated forward and upward, it is held by an assistant. From the posterior edge of the vertical cut the elevation of the mucous membrane is now continued as far back and as close to the crest as possible. The elevation above is made with comparative ease and with dull instruments while we find the membrane quite adherent along the incisor and maxillary crest and here sharp dissection is necessary. The incision is now made in the cartilage depending entirely upon the sense of touch to prevent a perforation. It is unnecessary as some advocate to hold the finger in the opposite nostril to ascertain whether or not the knife is through the cartilage. The cartilage is gently elevated by means of a hoe-shaped instrument and held in tissue forceps while the muco-perichondrium of the opposite side is carefully separated and the elevation is continued as far back as possible and down to the bony crest. The cartilage is excised by means of a sharp elevator or angular knife especially devised for the purpose. About one-half to three-quarters of an inch of cartilage is usually left above as a support for the nasal bridge. This is exceedingly important as the removal of too much cartilage has resulted in a subsequent sinking in of the nasal bridge. This also provides for a possible absorption of cartilage in this region.

At this point it might be well to allude to an anatomical arrangement of the perichondrium and periosteum which is not always recognized by operators and which has recently been brought out in an article by Freer. The perichondrium follows the cartilage as it rests upon and overrides the vomer and incisor crest, collectively called the "ridge" and the cartilage and bone are seen to have two separate and distinct membranes, the perichondrium and the periosteum. Where the cartilage over-rides the ridge it is dissected out and removed completely before the ridge can be fully exposed. The ridge is then found to be enclosed in its distinct covering of periosteum which is incised and separated by means of sharp elevators and a raspatory to fully expose the bone. The bony ridge is best removed by means of the chisel and punch forceps which obviates the danger of fracturing the bone. The flaps are then replaced and both nostrils are closely observed to make certain that none of the deflection remains before the nose is packed. The packing consists of absorbent lint saturated with bismuth powder and cut into long narrow strips. The strips are placed in the nose in layers beginning on the floor of the nose and superimposed one upon the other until the packing is complete. This packs the nose evenly and does not bulge into the other nostril. It is sufficient only to pack the one side operated and to facilitate the removal of the packing the strips are dipped in vaseline oil.

The packing is usually removed in twenty-four hours. Some advocate no packing for these cases. My experience has been that the hemorrhage which sometimes follows a submucous operation is so severe in some cases that to allow a patient to go without packing is dangerous. As to the time required for performing the operation it usually varies with the extent of the deflection and may consume from half an hour to an hour and a half. Thoroughness is often sacrificed in the great desire for speed and many cases of perforated septum are to be attributed to this cause alone.

The after treatment consists in keeping the nostril closed by means of a plug of cotton for about two weeks after the removal of the packing and at the same time spraying the nose with a vaseline oil spray. Later on instead of the oil spray, the nose is swabbed with an ointment, composed of fifty grains of boracic acid to ½ ounce each of lanolin and vaseline oil. This minimizes the production of scabs due to the passage of air through the nostril and materially aids in the healing process.

# MORPHIN AND COCAIN ADDICTION WITH SPECIAL REFERENCE TO PROGNOSIS.*

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The first question put to the physician who has made a diagnosis of drug addiction, or who has been consulted in reference to such a case, is usually as to the prognosis.

While the statement of prognosis is in all cases a delicate matter, yet perhaps such statement is more difficult in the domain of nervous and mental disease than in other special branches of medical science, and still we must attempt a more or less definite statement in each individual case, and so must weigh carefully all the minutiae pertaining to the patient and to his affliction.

Cases of morphin or cocain addiction, brought to the attention of those in special practice, are usually ones of long standing, indeed all cases of habit formation are of necessity chronic and the prognosis involves a consideration of, first, the possibility of successful withdrawing of the drug used, and, second, the possibility of effecting a permanent cure.

It will practically always be possible to make a favorable statement as to the first term of our prognosis, as there exists but little difference of opinion as to the possibility of withdrawing morphin without endangering the patient's health, except in a few rare cases.

As to the second term, the possibility of effecting a permanent cure, it is necessary to be more cautious, and I will present briefly the best opinion upon this phase of the matter.

A hasty review of the American literature upon the subject reveals a large number of very superficial articles presenting in my opinion, very unwarranted conclusions, one man reporting 800 cures with only 10 per cent. relapses. Most of these papers are exploitations of the hyoscine substitution method of treatment, and I believe that, judging from my own experience, their conclusions as to permanency of results are of little value.

I say this because I believe that a patient, having relapsed after treatment by a certain man or method, does not, as a rule, return to that man, and is very likely to try another method; thus we are spared seeing our failures, but our viewpoint is perhaps warped.

A review of the German literature recently summarized by Koenig, discloses to my mind a more thorough appreciation of the gravity of the subject.

A very unfavorable view of the prospect as to permanent cure is expressed by most authors, notably—Levinstein, Kraepelin, Deutsch, Oppenheim and Berthololey, while Erlenmeyer and Bumke state "that most cases relapse." These opinions emanating from European clinics where patients are under very strict observation and where the after care is unusually thorough, are entitled to great weight and the actual belief and experience of physicians of my acquaintance, who have had opportunity of treating many cases, is that most of those who have been restored to society as cured, after a longer or shorter time again succumbed to the temptation to use morphin in some form.

A larger experience has led me to believe that in the majority of cases the persons afflicted naturally lacked will power and resistance and, in fact, had very little self-control.

Many men have given close study to the factors making for safety or the reverse in individual cases and many conclusions as to the predominant factors have been formulated, I believe, however, that no method of attack is better than the simple consideration of, first the patient, his mental make-up and peculiarities, and, second, duration of treatment.

In speaking of the patient as the first factor, I include the sum total of his physical and mental make-up, previous to his use of morphin, and including the cause or causes which led to his embracing a habit forming drug. I believe that these patients may be divided into three etiologic groups for the purpose of this discussion.

1. Those who acquired the drug habit because of *chronic* painful ailments, such as tabes dorsalis, neuraliga, painful peritoneal growths, etc.

2. Those who resorted to drugs because of *acute* and perhaps relapsing ailments, such as gall stones, kidney stones.

3. Those who, although free from physical ailments, resort to the use of morphin in order to free themselves of painful psychic disturbances,

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as mental depression and insomnia, also those who acquire its use in search of new sensations. This third group, of course, includes those nervously weak individuals, especially those who are so from inheritance, whose will and judgment are in unstable balance, who rush to gratify every desire, content to, and intent upon fulfilling today's wish, heedless of the future evil which may be resultant upon so doing.

It is obvious that there is little to expect from those patients who are embraced in the first group, if we are unable to remove the chronic, painful condition which led to their habit formation.

Also we must confess to little hope of permanent cure in those of the third group, because there too we are unable to remove the primary cause which lies in the central nervous system.

There are many authors who deny the possibility of morphinism in persons of normal mental make-up. Weber in a monograph published in 1910 says: "Morphinism originates in the soil of a latent predisposition, the result of inherited degenerate dispositions." Deutsch and Fuhrer hold to this view, as do Briand and Tissot of the French school. Berthololey, however, maintains that the neurasthenic state found in morphinists is the result of the habit, and does not believe that a majority of habitues possessed moral or intellectual defects previous to acquiring the habit.

It is, of course, very difficult to secure sufficiently accurate data in many cases to enable one to say authoritatively that the patient was or was not an individual of stable nervous system preceeding the habit formation.

I am of the opinion, however, that one-half of all drug users are nervously constitutionally inferior individuals. But among the second group, the conditions are different and it is among these patients that our efforts have the greatest chance of success.

In reviewing the recent American literature upon morphinism I was astonished at the apparent failure of many to realize the imperative necessity of time as a factor in the treatment of drug addictions.

Many writers appear to consider the case at an end and responsibility over when the patient has had his last dose and been free from acute distress for a few days.

This, however, is not more than one-half of what must be accomplished. Such a patient needs a prolonged period of protection and a complete physical and mental upbuilding, best accomplished in my opinion by means of out door life, graduated exercise and rest, together with hydrotherapy. The most conservative German authorities advocate 6 to 9 months as absolutely necessary to bring about such a rebuilding of the individual as to give reasonable hope of permanent cure.

There is no diversity of opinion among authors abroad as to the need of protracted treatment. Friedlander says: "Only if we succeed in recasting the personality of the patient, in strengthening his will, and in making him free and strong from within, may our task be considered completed.

In this country the advertisement of three-day and ten-day cures has greatly lessened the period during which the patient can be prevailed upon to undergo treatment, and hence has greatly lessened the chance of permanent cure.

Granting that after a thorough study of all the details of a case, we have made a favorable prognosis, when may we say that a cure has been accomplished?

Certainly not immediately upon the withdrawal of the drug for, although the patient may say that he has no craving, and may appear comfortable in his then surroundings, nevertheless such a patient is in a state best likened to one of neurasthenia; all of the vital functions are more or less upset, intestinal disturbances prone to occur, sleeplessness, muscular cramps and vomiting upon fatigue, headaches and periods of great restlessness frequently occur at intervals for a number of weeks.

These disorders may be warded off in many instances by careful aftercare, but are almost certain to occur in patients returning too soon to their accustomed vocations and many times lead to an almost immediate return to the use of morphin.

There is no convention as to when a patient may be pronounced "cured." Some German authors report relapses after long periods, notably Berthololey, who reports relapses after seven

years, and Deutsch, who reports a lapse after nine years.

At this rate we could hardly speak of a permanent cure at all and would regard all successfully treated patients as potential drug users.

This is in marked contrast with American literature in which cases are reported as permanently cured so soon as the drug is withdrawn.

It would seem as though a middle ground between these views might be tenable, say that we regard as permanent cures patients who remain well for eighteen months after the last dose, in the meantime pursuing their usual occupations.

The main purpose of this paper, however, is to emphasize the seriousness of the morphin habit, and to controvert the increasing belief that it can be eradicated in a brief time by any so-called cure or treatment, and to urge that those physicians who are consulted by drug users impress upon them the importance of giving not less than three months to the attempt to permanently rid themselves of the habit.

## REPORT OF A CASE OF JUVENILE PARESIS.*

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The first case of juvenile paresis was described by Clouston in 1877, and showed no difference, either clinically or anatomically, from the paresis of adults.

Since then a large number of cases have been reported, there being about 250 cases on record. Mott, A. Westphal, Oppenheim, Regis, Wiglemarth, Bury, Strumpel, Hufler, Hirschl, Bresler and others have made reports on this condition. It has, moreover, been rendered more easy to diagnose since the Wassermann reaction came into use.

In a Report of the Insane and Feeble-minded admitted to Institutions during the year 1910, issued by the Department of Commerce, out of 60,769 patients with all forms of psychosis there were 327 under fifteen years of age, and seventeen of these had general paralysis (11 males and 6 females). Between the ages of fifteen and nineteen there were 2,539 patients admitted, and 47 of these had general paralysis (28 males and 19 females).

Though some writers claim that juvenile paresis is more frequent in the female sex, and the foregoing statistics show that the male sex predominate, I think it is generally conceded to be about equal in both sexes. One reason for the small number of cases on record may be due to the fact that the disease is often diagnosed as

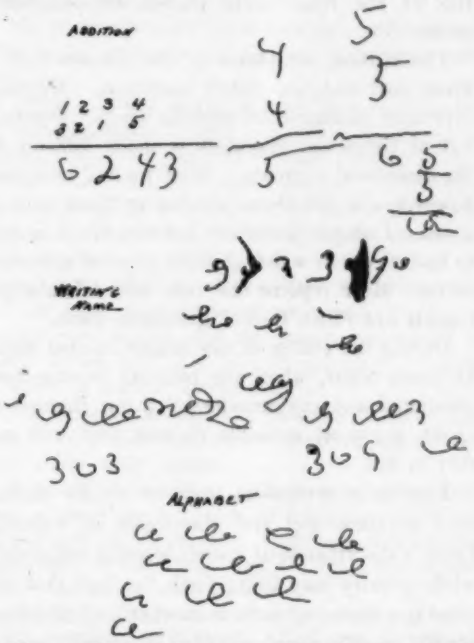

Fig. 1. Handwriting and mathematics showing the mental deterioration of patient. It does not, however, show the excessive tremor of the adult type.

"idiocy with epilepsy." It is not unusual to find such cases in institutions for idiots.

As a rule the disease begins during the years of development, but it is sometimes found as early as five or six years of age. Often there is a noticeable mental and physical inferiority in these children from infancy; while in other cases there is normal development, and the disease comes on gradually, as in adults.

Statistics emphasize the fact that syphilis is the common basis of juvenile paresis. Alzheimer found this to be certain, or very probable, in about 70 per cent. of his cases. Hirschl, among 20 cases, obtained 17 certain and one probable history of inherited syphilis, and Mott, from

*Read before the North Shore Branch Medical Society, April 6, 1915.

examination or in the history of 22 cases, found evidence of lues in 80 per cent. Often it is found that the parents are victims of tabes or paresis, the brothers or sisters suffering from congenital syphilis; or alcoholism and syphilis can be found in the parents. In the majority of cases, however, hereditary syphilis is found to be the cause. But whether the case is one of congenital or acquired infection, the symptoms of both are probably due to toxins produced by the activities of the Spirochaete pallida on the brain cortex.

The clinical symptoms of the disease vary a great deal and are rather uncertain. External evidences of congenital syphilis are not unusual; but at times the diagnosis is made difficult by the absence of stigmata. What we find as a rule, however, are symptoms similar to those seen in a case of simple demented paresis; for it is rare to find a case in which childish ideas of grandeur occur. Mott reports one case and Kleinberger reports five which showed grandiose ideas.

During the course of the disease excited states at times occur, when the patients become very emotional and cry senselessly, throw themselves about, grasp at invisible objects, and will not stay in bed.

The early symptoms may be chiefly motor, such as stumbling and clumsiness in walking. Later a disturbance of speech becomes noticeable, while inquiry may bring forth the fact that the child has appeared to be somewhat dull at school lately. Optic nerve atrophy is among one of the early frequent symptoms; while the Babinski reflex is often demonstrated for a long time; sometimes a dorsal flexion of the great toes results. Convulsions seem to be of very frequent occurrence, and are mostly of an epileptic character.

The disease is of about two or three years' duration, though life may be prolonged for five or six years, and one case has been reported in which it lasted over nine years. The majority of writers claim that the course of the disease is shorter as the age increases. The mental and physical weakness increases as the disease progresses, until the patient finally becomes unclean and confined to bed, which makes him liable to any intercurrent affection.

The morbid anatomy of juvenile paresis is similar to that found in the paresis of adults, with the addition of the signs of congenital syphilis.

The case to be reported is R. S., aged about 13½ years. Her parents are both living, but separated. The father is a heavy drinker, and was so at the time of the birth of the patient. His disposition is queer and irritable. The mother is nervous and suffers with headaches. There is no history of insanity or nervous diseases in relatives. The parents are not related the mother was 22 at birth of patient; the father was 28. Birth of patient was normal, no instruments being used. The history of grandparents is negative.

The mother of patient had four children; two girls are living, the patient and a sister, who is well. Two boys died, one from summer complaint at the age of ten weeks; the other died just after birth. The mother said she had the following miscarriages; one before birth of patient, several after birth of patient, one before next child, and three before next boy.

Early Childhood: There was no blemishes on body of patient when born. At nine years of age she had an eruption resembling scarlatina. During the course of this eruption, or just after, four or five large blebs (as large as a dollar) formed on the back, and left small scars. The patient did not suffer from convulsions during infancy or childhood. She began to walk at eighteen or nineteen months and began to talk about the fifteenth month, and dentition was apparently normal. She had measles during childhood.

Character as a Child: For the first five or six months of life was cross. As she became older she was easily pleased, and was never selfish or stubborn. She was a very active child.

School: Because of some school rule, she did not start school until 7½ years of age. She remained at school 3½ years. She was very bright, learned easily, preferring books to play, and had just passed into lower fourth grade when taken out of school.

Habits: She was social and mingled with children of her own age.

History of Present Illness: The mother states that about 1910 the patient had adenoids and enlarged tonsils, and seemed to lose interest in things and become indifferent. The adenoids and tonsils were removed. The mental condition of the patient became worse after the operation. The first noticeable change was the soiling of clothes with urine; next she began to act in a foolish, silly or baby-like way. The speech began to change about a year and a half ago, and gradually grew worse; the patient had difficulty "in getting her words out," and her mother could not always understand her. Before the onset of the speech defect, a disturbance in gait was noticed, such as stumbling into or running against things, and this disturbance in gait has progressed. A few times during the summer the patient soiled her clothes with feces.

It was next noticed that the patient's reading, writing and mathematical calculations were deteriorating

The memory defect dates back two years. The character and disposition of the patient changed; she became emotional, cried, became angry or irritable, and swore quite often. Before the onset of the illness the patient was an excellent speller, a plain penman, good in arithmetic, and could read and pronounce words distinctly.

At present the patient is a great care to her mother, requiring the attention of an infant. At times she eats with her fingers, has great difficulty in buttoning her clothes; takes a long time to dress herself, and then does it carelessly. It is necessary to take her to the toilet, put her to bed, wash her hands and face, comb her hair, and wipe her nose.

General Appearance and Manner: We see a patient, idiotic in appearance and actions, changeable of mood, at one time, silly laughter and behavior, another time whining or swearing. She is careless in personal appearance and in eating, necessitating the use of a towel around the neck to protect clothing. The facial expression is neither sad nor happy, but aimless; there is apparent indifference in her manner. She is impulsive at times, and has a habit of sucking her thumb and picking her nose. Her weight has increased; she stumbles and is clumsy in walking. She does not comprehend orders and makes mistakes in executing them, and there appears to be some confusion.

Spontaneous Complaints: Unable to elicit any from patient.

Emotional Attitude: At times swearing, crying or whining, or laughing sillily.

No delusions, hallucinations or illusions were elicited.

Orientation: After prompting, the patient was able to give her name, but not home address. She did not know the day of the week.

Personal Identification: She did not know when or where born. After some prompting, knew her age.

Memory of Immediate Past: Did not know what she had had for breakfast that morning; or know when she came to the city.

Retention: The patient was shown a pencil, but she could not remember it in a few minutes.

Grasp on Stock and Extent of General and School Knowledge: She could not say the alphabet, nor the days of the week; neither could she tell the date of Christmas.

Calculation: She could not count from 1 to 10, nor add simple problems such as $1+2$; $3+6$; $5+5$. She was given 45 cents in change and after a short time was able to name the coins, but unable to compute the amount.

Reading: She could not read simple sentences. She attempted it, but could only utter unintelligible sounds.

Writing: She could not write her name.

Insight: She did not have any insight into her condition. Her mother says, however, that at one time the patient said, "I wish I was dead."

Physical Condition: Her nutrition is good. There is some furring of the tongue and dryness of the lips. The appetite is good; but she bolts her food and drinks water or milk in gulps. She is constipated. There is incontinence of urine, wetting the clothing frequently. At times she soils her clothes with feces.

Nervous System: Smell and taste practically normal. Vision and hearing practically normal.

Sensibility: Possibly some tenderness on deep pressure over nerves in lower extremity, as patient cried when pressure was made; in fact, she cried when any examination was attempted. Both feet were cold; skin of lower limbs was glossy; dermographia was present.

The tactile and pain sense were apparently normal. The finger to finger and finger to nose tests were defective.

Cranial: Pupils equal; did not react to light, but to accommodation. There was some sluggishness of pupil dilation on irritating cervical sympathetic.

The voice was of a nasal character, articulation markedly defective. The patient had difficulty in getting the words out, and slurred them; the speech was drawling.

Gait: At times in walking there was a tendency to fall down, as if the knees were weak; the movements were clumsy, and the patient was unable to stand on one foot, or to take off and put on clothing.

There is marked Rombergism.

The patient's writing was markedly defective, the letters being badly formed and irregular, and she left out letters in her name.

Abnormal Contractions: There were slight fibrillary contractions or spasms of left upper eyelid and left corner of the mouth. There was a worm-like movement of the thumb and big toe (hyper-extension), possibly a form of athetosis.

Tremors: Slight of the tongue; of lips (slight), when speaking or drinking. Of fingers; changeable tremor or irregular movements; at times fine, at other times coarse, as if involving arm, wrist and hand. This tremor increased on attempted action, or when emotional excitement was great.

There were no Babinski's, Gordon's or Oppenheim's sign.

Reflexes: Biceps and triceps brisk. Knee jerks absent, even on reinforcement and distracting the patient's attention.,

The right naso-labial fold slightly more prominent than left.

Spine: Some scoloisis to the left, and slight lordosis.

Ocular fundus normal. No apparent retinal or optic nerve atrophy.

Gynecological Report: Organs infantile, with a suggestion of a previous endometritis, and swollen uterus. A smear showed gonococci.

Wassermann Reaction: Negative.

Cerebro-Spinal Fluid: After many efforts at two different times we were unable to secure any spinal fluid.

Clinically this case presents the findings of juvenile paresis.

The gynecological report; the dry puncture, and the negative Wassermann, should be discussed.

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## PERINEAL LACERATIONS.*

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It is not the purpose of this paper to tell you anything new and startling, but merely to call attention to an every-day class of cases, which, in the shuffle of a general practice, many of us are prone to overlook, for in Clark county, as in most rural communities, the obstetrician and the general practitioner are one and the same man.

So it may be well to briefly review the anatomy of the female perineum, the cause of lacerations, classes, results, occurrence of lacerations, and treatment, both prophylactic and curative.

Anatomy: Anatomically speaking, the perineum is that diamond-shaped space bounded in front by the symphysis pubis, posteriorly by the coccyx, laterally from before backward, the rami of the pubis and ischium, the ischial tuberosity, and the great sacro-sciatic ligament.

From an obstetrical standpoint the perineum is considered as that part of the anatomical perineum, which is between the fourchette and the anus.

The structures which form the floor of the perineum are from without inward, the skin becoming continuous anteriorly with the mucous membrane of the vagina and posteriorly with the mucous membrane of the rectum, outer layer of superficial fascia, anterior fibers of the sphincter ani, posterior fibers of the vaginal sphincter, and transverse perinei muscles, all blending in the central point of the perineum, deep layer of superficial fascia, triangular ligament, and levator ani muscle.

The various component parts of the floor are normally the support of the pelvic organs. Each structure named is by itself a factor in this support, some to a greater extent than the others. Formerly it was believed that the levator ani muscle was the one essential factor, but now most authorities agree that as important as is this muscle, the fascial layers, especially the triangular ligament are of greater importance.

Causes of Lacerations: Text-books give us quite an extensive list of the causes of lacerations, but it seems that the question should not be why we have lacerations, but rather why we do not always have one when a large, solid object is compelled to pass through an opening ¼ or 1-5 the circumference of the object. True, the structures surrounding the opening are elastic and skillful management of a normal labor allows the tissues to be gradually and gently stretched, but there is a very definite limit to this elasticity. Then again, lacerations would be much more easily avoided if the vaginal orifice were in the center of the pelvic floor rather than so far anterior. Then, we do not always have normal labors to deal with. Precipitate delivery, from the viewpoint of pelvic floor injuries, is a more serious abnormality of labor than any other one, especially in the virgin. In this case, if the head is of average size or larger, we are practically certain to have a laceration.

Use of forceps is considered by a great many among the laity, and even some among the profession, as being the cause of most lacerations. While many lacerations have undoubtedly been caused entirely, and inevitable lacerations made more extensive by the unskillful use of forceps, it is not my opinion that the proper and intelligent use of forceps ever produces an avoidable laceration or aggravates an unavoidable one.

Classes: Lacerations are usually classified as (a) external or superficial tears, (b) internal or deep tears, and (c) complete tears. Vaginal tears, anterior and lateral, are occasionally met with but are rare and of minor importance and, due to lack of space, will not be considered in this paper.

External or superficial tears are those in which only skin and mucous membrane are involved. Internal tears are those in which muscle and fascia are torn in addition to skin and mucous membrane. Complete tears are those which extend clear through into the rectum.

Results: The first class are sometimes of little consequence. The pelvic floor is not weakened, even if the injury is not repaired. Sometimes they heal by first intention, leaving no disagreeable results whatever. At other times they become infected, and if this infection does not start

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a mild septicaemia or as in rarer cases, a severe one, it at least when healed leaves a more or less irritating scar.

Lacerations of the second and third classes have much more serious results if not repaired. In addition to the probability of infection and the almost certainty of the formation of an irritating and dangerous cicatrix, the support of the pelvic organs is destroyed, the muscles become atrophied from disuse, the rectum, bladder, uterus, tubes and ovaries, prolapse, setting up a never-ending train of distressing symptoms, and in the third class as well there may be a partial or complete incontinence of feces.

No woman in this condition can enjoy life and, in the words of some authority, just whom I can't recall, the woman with the cancer, who fears she is going to die, needs sympathy and assistance not so much as the woman with the old unrepaired lacerated perineum, who fears she is not going to die.

Occurrence: I have purposely refrained from reading statistics regarding the frequency of lacerations and of discussing this subject with my colleagues, so that I might ascertain in the discussions of this paper how my observations coincide or fail to coincide with your observations and with the statistics of the authorities. In my practice 80 per cent of primiparae and 30 per cent of multiparae suffer lacerations of a greater or lesser degree, varying from a slight superficial tear to those of considerably greater extent. A mighty poor obstetrician I can imagine some of you are saying. Perhaps that is so, and I would feel greatly humiliated, were it not for the fact that 60 per cent of all women who have borne children and been cared for by other physicians and later present themselves for gynecologic examination, show unmistakable evidence of an old unrepaired laceration. When we remember that undoubtedly some of the other 40 per cent have been torn slightly and have healed by first intention, leaving no trace of the injury, and that some of them have been torn and skillfully repaired, it makes it seem as though other physicians also have a rather high per cent of lacerations. Of course, this method of deduction is not conclusive, as we will all admit that the women who have escaped pelvic floor injury during labor, are much less liable to have occasion to consult the physician for what they term "female disease." But what seems the worst feature of this record is that of the women who show evidence of an old unrepaired injury, at least one-half assert that their physician assured them that there was absolutely no tear. The one encouraging feature is that the largest per cent of this class of cases is among the women who bore children from 20 to 40 years ago, indicating that the profession is either becoming more skillful in avoiding lacerations, or else more alert in recognizing and treating them.

Treatment: Prophylactic. First, give nature all the time it needs in perineal stage of labor and then a little additional time. Prevent birth of head for at least 30 minutes after perineum begins to bulge, in primiparae, and half as long in multiparae. To accomplish this, use direct pressure against the head during pains, and if this does not suffice, give the patient enough chloroform to retard the pains to the necessary extent. When relaxation is as complete as you can expect to have, push the head well up under the pubic bone as it is allowed to escape.

Second, in no case use forceps until necessary, and then try to remember the proper course for the head to take in its passage through the birth canal.

In many cases of abnormal labor, eclampsia, mal-position, etc., these rules cannot be followed. Then one must use his best judgment and choose what seems the lesser of two evils.

Third, in any case where a severe and extensive laceration is inevitable, episiotomy should be performed. This is best done by use of scissors during the height of a pain. The incisions should be made, one on each side of the vulvovaginal orifice, at right angles to the normal vaginal opening and slightly behind the median line. The length of the incisions should depend upon the probable extent of the inevitable laceration. The object of this operation is to substitute two small, clean, lateral tears, through comparatively unimportant structures, for a more serious, rough posterior tear.

When labor is finished and you find that, in spite of all precautions, you have a laceration, do not hesitate to inform the patient and her family of the fact. It is not going to put you in nearly so bad a light as it would to do otherwise, and have them find out afterwards, which in these days they are certain to do sooner or later.

As to immediate repair—this will depend upon the extent of the injury and the local and general condition of the patient. As a general rule, stitch up all open wounds as a means of preventing infection. When the parts are not over edematous, and the general condition of the patient warrants it, attempt to reunite all torn structures and sew them securely in place.

When there is a great deal of swelling, or the patient, from exhaustion or other cause, is unable to undergo complete repair, merely cover up all open wounds, and inform the family that a subsequent operation will be necessary as soon as the patient recovers sufficiently to warrant it. Then there is no excuse for the operation not being done early if not immediately after labor.

In cases of old unrepaired lacerations an operation should be advised as soon as they come to our attention.

References: 1. Ashton, Practice of Gynecology.

2. Jewett, Practice of Obstetrics.

3. Cunningham, Practical Anatomy.

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## PROGNOSIS IN EYE INJURIES.*

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The subject of the prognosis of eye injuries is an extensive one, and it is manifestly impossible in a brief paper to more than generalize. I shall attempt, therefore, only a discussion of a number of factors which appeal to me as of especial value in estimating a prognosis, and shall refer in detail to a number of special types of injuries which appear to me as of particular interest. The term "prognosis" has been defined as "A forecast as to the probable result of an attack of disease." Probably no part of a physician's duty is more difficult than that of giving a prognosis. In eye injuries this difficulty is, if possible, greater than in any other class of cases. To the lay mind there is a sympathy and dread associated with a loss or impairment of sight which has no corresponding parallel in injuries of other parts of the body. An intelligent prognosis is predicated upon the results of examination and the evidence obtained from clinical observation. In its ultimate analysis the question of prognosis is a question of diagnosis and the consideration of a prognosis must then of necessity deal in greater part with the elements entering into a diagnosis.

The examination is the first element in the investigation of an injured eye and the first element also which contributes data for our diagnosis. It is of paramount importance therefore that a procedure upon which so much depends should be painstaking and exhaustive, in order to obtain the largest yield of information. It may be profitable to review briefly a few elementary principles which are of practical value in conducting such an examination.

First, as to the history of the injury: Apart from those cases of eye injury, like burns from lime, molten metal, etc., in which immediate relief is demanded and in which the history is quickly obtained, it is wise to pause before hastily beginning the eye examination proper to ascertain the history of the accident

This "advance information" is of especial value and may suggest a suitable method of procedure. For example, if the history given is that of a sharp instrument, like a scissors, penetrating the globe, we should be prompted in consequence to conduct our manipulations with the utmost caution to avoid increasing a prolapse of intra-ocular structures. If such a case be that of a very young or nervous child whose cooperation is uncertain, a general anesthetic may be advisable.

Next in importance to obtaining the history is the precise method or technic employed in conducting the examination. It is the common experience that only brief inspection of an injured eye, particularly in children, is possible, and in order that much may be gained in the short period available, a definite plan of procedure should be instituted. This routine observance of a number of practical working details will aid materially in the results desired. The following five "first-aid" measures are of distinct value:

First. The position of the patient during the examination. If possible, he should occupy the recumbent position, in such a position the patient is more relaxed and more likely to be calm than if seated.

Second. Good illumination. This is an ab-

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solutely essential; few examinations may be conducted satisfactorily without it.

Third. Specific instruction to the assistants.

Fourth. Arrangement of a dressing table containing the various lotions, irrigating solutions, dressings, instruments, etc., conveniently located, so that they may be easily and quickly procured.

Fifth. Use of local anesthetic. Before attempting to separate the lids for the inspection of the globe, it is a wise provision to gently evert the lower lid and instill a drop of two per cent. cocain solution. This counteracts the blepharospasm, induces anesthesia, and materially assists the examiner.

In addition to the foregoing, the following details of investigation are of distinct service, in their respective appropriate application.

1. Smears and cultures from wounds, ulcers and infections of neighboring structures. These not only supply one with a precise knowledge of the specific pathogenic microorganisms present, but in addition provide the material for vaccines.

2. Blood examination and Wassermann tests: In the case of a positive response to the Wassermann test, this knowledge might explain the clinical course of an injury which might otherwise offer considerable difficulty of interpretation.

3. Urinanalysis, both chemical and microscopical is an absolute essential in all eye injuries.

4. Testing of visual acuity, perception and projection field of vision for form and color. It is a common experience that serious affections of the optic nerve may remain for a considerable period unsuspected, owing to the fact that central vision shows no particular impairment. In such cases changes in the field for form and color may be the first warning of such impairment.

5. Skiagraphs: In all cases of suspected foreign bodies penetrating the globe, the body itself must be accounted for. The absence of a "wound of entrance" or injury to the structures of the anterior quadrant of the globe does not point with certainty to the absence of a foreign body being within the globe itself or within the orbital tissues. One skiagraph is seldom sufficient upon which to base an opinion; at least two should always be taken. The surgeon should learn to interpret the plates himself; such a study will well repay the effort expended.

6. The electric magnet. This instrument is an indispensable aid in the case of retained magnetic foreign bodies. A negative response to the magnet test, however, is not to be accepted as a positive proof that a magnetic foreign body may not be retained within the globe.

In connection with this consideration of what may be termed "therapeutic details" which have an important bearing on the prognosis, two types of injuries suggest themselves, first, foreign bodies in the cornea; second, ulcers resulting from such trauma. These two are selected because they are common types of injuries and complications of injuries, because the plan of conducting their treatment influences so greatly their prognosis and because in no class of cases is the penalty for sins of "omission and commission" so serious.

As an example of the omission of important details of treatment, is the not uncommon practice of omitting to apply a protective bandage after removing a foreign body from the cornea. The wisdom of protecting such a traumatized cornea until the epithelial surface has regenerated and closed the atrium of infection is beyond dispute; and yet, how frequently do we yield to the patient's entreaty to forego its application and trust that all will be well. A large majority of the cases of corneal ulcers is due to foreign bodies, and this fact alone is a sufficient reason for insisting that no protective measure be denied an eye suffering from an injury which exposes it to such a serious complication.

An equally common sin of commission is the practice of permitting a patient with a corneal ulcer to make daily visits to our office for treatment or to continue work during the treatments. No one will deny that such a patient should have absolute rest for the affected eye, and that he should not be permitted to continue using the uninjured eye because of the irritation it necessarily provokes in the injured one.

The judicious, early and energetic treatment of corneal ulcers bears an important relation to the question of their prognosis. Every slight encroachment of the destructive process entails a corresponding loss of visual function, small though it be, due to the loss of transparency which results. As MacNab concisely expresses

it: "The fall in the economic value of the individual due to any loss of transparency in that small area, is so out of proportion to the actual damage done, that it makes the cornea one of the most important structures in the whole body." Apart from the element of physiological rest required for an eye affected with a corneal ulcer, three other therapeutic measures should be mentioned. First, determination by smear and culture of the specific pathogenic micro-organism present; second, cauterization; third, sub-conjunctival injection of cynade of mercury. These are well recognized in the treatment of such infections. They are mentioned, however, to give emphasis to the point, that they should be used early in order to obtain the best results. We are indebted to Dr. Harry Woodruff for directing our attention to the value of cyanide injections in infective ocular processes and for advocating their early exhibition in such cases. The value of various serums and vaccines in the treatment of ulcers, is still undetermined.

In the foregoing class of cases, foreign bodies in the cornea and corneal ulcers, a number of other important factors should be taken into account in estimating the prognosis. Among these factors may be mentioned the age of the patient. In old people both the resistance to infection and the regenerative capacity is usually minus. The prognosis of such pathological processes occurring in the aged should therefore be reckoned with caution. In the same category is to be placed patients who suffer from purulent processes of neighboring structures, such as dacryocystitis, disease of the nasal accessory sinuses, or who are subjects of general constitutional disease, such as syphilis, tuberculosis, diabetes, nephritis, etc.

As illustrative types of ocular injuries I have selected a number of the more commonly encountered traumas occurring in my own experience in which the prognosis presented more or less difficulty.

Illustrating the importance of making a smear and culture in eye disease, the following case occurring in the practice of a colleague is cited. Parantheticallly, I may state that I cite cases of this character as pertinent to my subject, because of the fact that in the industrial world a large number of cases of this kind present themselves, giving a history that a foreign body as dust, cinder, etc., getting in the eyes was the inception of the eye trouble. Such a case was that of an adult, who presented himself to his physician giving a history of cinders having blown into his eyes the day previous. No foreign bodies were discovered, a slight conjunctivitis was diagnosed, the appropriate lotions ordered, and the patient directed to return. He did not return as directed, but about a week later appeared with a fully developed case of Neisserian infection involving both eyes. He admitted at this time suffering from a chronic urethritis. Owing to his lack of co-operation and general antagonism to the treatment, corneal ulcers developed, and subsequently resulted in loss of vision in both eyes.

The advantage of utilizing the Wassermann test in cases which exhibit a clinical progress quite inconsistent with the history of injury is illustrated by the case of a patient whom I saw suffering with a severe iritis, dating from a supposed injury.

While uncoupling an air connection between cars, the exhaust air, he stated, blew into his face. A few days later he developed an iritis. The severity of the iritis seemed out of all proportion to the history and no evidences of injury being discoverable a Wassermann test was made, which proved frankly positive.

The prognosis of injuries to the eye in which a foreign body is retained within the globe, removal of same being found impossible.

Ophthalmic surgeons are unanimous in the opinion that a retained body in the eye, incapable of being removed, spells disaster to the eye affected. The literature records occasional cases where foreign bodies have been tolerated for considerable periods in an eye without exciting destructive inflammatory reactions, but these rare instances in no way negative the dictum that all eyes harboring such invaders must be reckoned as lost. Fuchs records that "the prognosis must be stated as almost absolutely unfavorable when a foreign body has been left in the eye."

A brief reference is of interest as to the tolerance of the eye to various bodies. Experimenting on rabbits, Leber, quoted by Wurdemann (Injuries of the Eye), found that, "a piece of gold wire remained in the anterior chamber 269 days without causing reaction, also that gold and silver remained in the vitreous for a year without

causing inflammation, but proliferative changes occurred in the retina and vitreous with partial atrophy of the nerve elements."

Reaction varies according to the specific tissue involved. The uvea, particularly the iris and ciliary bodies are especially susceptible to reaction, the vitreous and retina next and the lens least. Aside from the size and shape of a foreign body—small and blunt bodies occasioning less reaction than large and sharp ones—certain other factors determine the tolerance of the eye to the foreign body.

First: Infection. The body must not be infective or carry infective material in its passage to be retained within the globe.

Second: The chemical character of the substance introduced. Glass is best tolerated by the ocular tissues since it excites no chemical change. Chips of metal, even if sterile, are oxidized, and are chemical irritants; almost invariably they produce inflammation of a severe type, deposit pigment which results in a staining of the tissues known as siderosis bulbi. This discoloration of the tissues is sometimes of value in reaching a decision as to the presence of a body when other diagnostic measures have failed. Copper is particularly dangerous and excites more chemical irritation than iron or steel. The location of such bodies in the eye to a certain extent governs their behavior. The lens tolerates copper, iron, and steel bodies better than the other tissues; if in the vitreous, necrosis and retinal detachment occurs; if in the anterior chamber, iron and steel bodies soon become rusty, covered by fibrin and produce tissue staining; while copper in this position excites irritation easily because of its quickly entering into solution in the aqueous.

Wurdemann reports a needle point remaining in the cornea 527 days rusting and staining, however, resulted. Hirschberger states that copper in the conjunctiva or outer layer of the eye is not dangerous.

Illustrative of the tolerance of the eye to retained foreign bodies, I recall several cases occurring in my experience.

Case 1. Male, aged 34. Presented himself with a history that about a week before, while engaged in chipping metal, a piece struck him in the left eye. Continued his occupation and suffered little distress other than a slight redness of eyeball for a few days. Was sure nothing had gotten into the eye. Examination of lids and globe negative, other than a small point of conjunctival injection, at nasal-sclero-corneal junction, axis 180. No evidences of a wound of entrance visible. Vision—20/20 plus. Examination ophthalmoscopically media negative; lying on the retina, however, slightly to temporal side of disc, a small glistening body could be seen.

This proved to be a small piece of steel which was easily removed through a scleral incision and the magnet.

The case illustrates:

1. The absolute unreliability of the patient's statements regarding the foreign body; the uncertainty of depending upon the absence of a "wound of entrance"; the wisdom of making an ophthalmoscopic examination in all cases of this character; the tolerance of the retina to foreign bodies, a week having elapsed; the possibility of a small body of this character perforating the globe, passing through important tissues and exciting no inflammatory reaction or impairment of vision.

Case 2. Patient, aged 40. Presented himself suffering from a conjunctivitis, both eyes. A small, dark spot slightly elevated was discovered in the nasal sclera, 6 mm. from the limbus, horizontal meridian. A foreign body was suspected, the overlying conjunctiva incised and a small piece of steel removed. The patient recalled that about five years previously he had been struck by a chip of metal while working, but suffered no inconvenience due to its location in the free area of the palpebral fissure, and not suspecting it had remained in the eye, had forgotten all about it.

This case illustrates the length of time foreign bodies may be in the sclera without occasioning difficulty, a period of five years.

Case 3. Patient aged 24. Presented himself with a history that about three months previously, while at work, a chip of metal flew striking him in the right eye. Had suffered no ill effects at the time, and did not suspect that body had entered eye. A few weeks after accident, observed vision gradually failing in this eye; at present time can only distinguish light. Examination disclosed a mature cataract; a slight thickening of anterior capsule, together with a corresponding localized small rather dense area of opacity was observed in the lens on its anterior temporal aspect. Eye otherwise negative. The cataract was removed, and with it came away a small steel foreign body. The tolerance of the lens in this case is shown, the body being retained three months without producing untoward symptoms other than the opacity of the lens.

These few cases illustrate the tolerance which the eye tissues occasionally exhibit to foreign bodies. It is necessary, however, to emphasize that this so-called tolerance is in no sense to be

interpreted as a dependable or certain element. On the contrary such tolerances were most unusual and have occurred as isolated instances among a large experience in this class of injuries.

In all cases of this character the routine procedure should include:

1. A complete history of the accident, with special reference to accounting for the foreign body.
2. A thorough examination, including visual acuity, tension and the opthalmoscope.
3. Skiagraphs—rarely one alone is sufficient.
4. The electric magnet.

Perforating injuries of the globe by perforating traumas or by a foreign body, which has been removed, and which have resulted either in total loss of vision or its reduction to light perception only and in which the patient declines the removal of the globe, present difficulties of prognosis peculiarly trying. This is especially true in the case of young children in whom the presence of the globe is of considerable service as an aid to the symmetrical development of the orbit and face.

The problem is not one simply of whether the injured eye will survive and prove serviceable from a cosmetic standpoint, etc., but concerns itself more particularly with the question of the dread and grave danger of a sympathetic process developing in the uninjured eye. Many factors influence the giving of a prognosis, regarding retention of the globe in such cases. Chief among them are the following:

First. The character of the patient himself; his ability to assist in intelligently and promptly estimating the condition and progress of both eyes; the degree of co-operation he supplies in the matter of reporting at stated intervals for examination, etc.

Second. The particular tissue injured, the time elapsed since the injury, the character and severity of the inflammation which resulted, whether the eye be quiet, tender on palpation, subject to outbreaks of inflammatory reactions, fluctuation in tension, impairment of light perception, etc.

Unfortunately the danger which is ever present in cases of perforating injuries, namely, the development of a sympathetic process in the sound eye, presents no well-defined symptoms characteristic of its incipient development nor have we as yet any dependable diagnostic measures which herald its approach.

In addition we are face to face with the appalling thought that once a sympathetic process is inaugurated, we are almost powerless to stop its progress, short of destruction of the eye.

When light perception is lost, tension becoming gradually reduced and evidences of inflammatory reaction are present in greater or less degree either constant or periodic, the time for inaction is passed and the globe should be removed without delay. This is the only safe course to pursue. It is now declared that the plastic closure of the lymph spaces and vessel, which follow a panophthalmitis, does not absolutely protect against the subsequent development of a sympathetic process.

Illustrative of a type of ocular injuries, where the objective symptoms and the severe reaction presented are likely to be misleading in predicting a prognosis, are cases of injuries from electric flashes, the so-called electrica ophthalmia. In this class of cases the external evidences of severe injury, such as great swelling of the lids, chemosis, etc., and the distressing subjective symptoms, such as blindness, pain, photophobia, etc., would lead one to expect a more or less considerable damage to the eye involved, and a grave prognosis might, therefore, be anticipated. Keratitis, retinal changes and opacities of the lens occasionally occur.

Experience, however, has demonstrated that the blindness is of a very temporary character, only exceptionally keratitis, lens opacities or permanent retinal changes result, and that the intense inflammatory reaction of the lids and globe likewise subside, as a rule, without impairment of these structures.

Cases of acute glaucoma following a needling operation for secondary cataract, are not properly a consideration of my subject. I include them, however, because a large number of eye injuries produce a cataract and a subsequent needling of the secondary cataract is frequently necessary; and to suggest a word of caution in the perhaps too ready assurance of the surgeon, "that the operation is entirely devoid of danger."

In the symposium on "Senile Cataract," before this society in November, 1911—as a part of my

contribution to the subject—I presented the replies of 160 ophthalmologists to a series of questions pertinent to the subject. One of the questions submitted was: "What difficulties have you experienced with the needling operation?" Of the 160 who responded 9 (5.6 per cent.), replied that they had encountered acute glaucoma following the needling; thirty-two (20 per cent.) replied that they had experienced such difficulties as infection, iritis, iridocyclitis, pan-ophthalmatis, etc.; three (1.8 per cent.), replied that they had experienced loss of eye. These data emphasize the fact that while a "needling" operation may be considered usually an operation of relatively little hazard, it can by no means be assumed that it is one of perfect safety.

Burns of the eye particularly the cornea from alkalies, soda, potash, lye, and ammonia, are very deceptive, so far as prognosis is concerned. A lime burn of the cornea, for example, at the outset may appear to be only a superficial injury, but subsequently may result in extensive necrosis, eventuating in dense leucoma, or possibly perforation, pan-ophthalmitis, and loss of the eye.

Burns from alkalies are of graver import, as a rule, than those from acids. The sensitiveness of the cornea, may be an index of the probable extent of damage to this structure likely to develop. If its sensibility be greatly impaired considerable necrosis and sloughing with the usual pathologic sequences such processes entail is to be anticipated. Owing to the exceedingly deceptive character of these injuries and the absence, at the time of injury, of clinical evidence upon which to estimate the extent of trauma, considerable caution and reservation, therefore, should be exercised in stating the prognosis.

In incised and lacerated wound of the cornea and sclera the prognosis is greatly influenced by the method of repair. In this connection I wish to testify to the advantages of the sliding conjunctival flap as a method of repairing such injuries. It supplies an efficient splint to the injured tissues, prevents prolapse, insures approximation of the lips of the wound, and thereby closes the atrium of infection and promotes early union. The difficulty of applying scleral sutures, the inadvisability of corneal ones, the exceeding difficulty nearly all wounds of this character present to the carrying out of a complicated operative repair—recommend such a comparatively simple procedure as the sliding conjunctival flap offers.

For a considerable period I have used this method of repair in this type of injuries, and my confidence in the method has greatly increased.

In conclusion, I desire to add that in the foregoing consideration of the prognosis of ocular injuries I have endeavored mainly to dwell upon and confine myself to a consideration of what might properly be designated "the first principles" underlying the estimating of a prognosis, without trespassing to any great extent upon the question of the proper treatment of the injury itself.

104 South Michigan avenue.

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## THE PRE-INSTITUTIONAL CARE OF THE INSANE.*

### METHODS USED IN COOK COUNTY FOR THEIR APPREHENSION, DETENTION, COMMITMENT AND CONVEYANCE TO STATE HOSPITALS.

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DUNNING, ILL.

The physician in this community who is called occasionally to attend or diagnose a case of insanity usually loses sight of the patient and his welfare after the first steps are taken to place him in a state hospital. I want to bring your attention then to that period in the insane patient's life which, in a narrow sense, I have called pre-institutional, and refer to the treatment accorded him. It is at this time he almost always falls into the limbo of the law and many are the vicissitudes that many attend him. I have found in this a rich field for investigation. I will describe chiefly the conditions in Cook County, though I could speak from some experience of conditions in other counties. Little writing on this subject has gained any wide circulation. In 1910 Dr. Bybee, formerly of Elgin State Hospital, wrote and published under the auspices of the Illinois Society for Mental Hygiene, a report embracing statistics showing the sources of 2,000 cases arriving at the Detention Hospital in Chicago. He described the usual mode of their conveyance thereto and their es-

*Read before the Chicago Medical Society, Feb. 24, 1915.

corts. He was surprised at the large number of cases handled by the police alone and was appalled at the misery sick and insane people are often subjected to in police stations. His recitation of the sober details is enough to shock anyone believing this to be a country highly civilized or scientific, and governed by humanitarian principles and the Golden Rule. It suffices to say he found the conditions in most of the lock-ups to be vile as to sanitation, furnishings, environment, etc., and atrocious treatment accorded to mentally disturbed and sick patients.

POLICE STATION ACCOMMODATIONS.

I have not had the privilege of spending time to investigate all the present jail conditions, but this work has been ably done by Miss Vella Martin, an investigator under the direction of the State Charities Commission. In the *Illinois Institution Quarterly* of September 30, 1913, there appeared a full report of all the jails and lock-ups in Illinois. Turning to Chicago and reading the descriptions of the conditions in the first 20-odd precincts listed, one will obtain a good idea of the remainder:

The Harrison Street Police Station in the Second precinct is characterized as "unfit for the housing of animals." The third precinct cells are described as "wretchedly damp, dark and ill-ventilated," with planks for beds. There is one cell equipped with a high wooden chair for strapping insane patients. The station is insanitary and unfit for confinement of human beings. Fourth precinct—"damp, dark and miserably ventilated. Planks for beds." Sixth precinct—"Toilet arrangement consists of troughs in backs of the cells, flushed by means of flowing water." Planks for beds. Women placed in two cells in adjoining room. Mattresses furnished, but troughs with running water for toilet facilities. "Station is absolutely condemnable." Eighth precinct—New, four years old. No provision for insane. Insane are taken to Harrison Street Station, the one described above as unfit for housing animals. Tenth precinct, said to be slightly above average police stations in Chicago. "One great evil is the lack of provision for insane. A wooden chair has been placed in corridor and here insane people are strapped until city physician can arrange for examination." Eleventh precinct—"No provision for insane necessarily detained here at times. . . . Unfit for confinement of human beings." Thirteenth precinct—"No provision for insane, though frequently received." Fourteenth precinct—"Insane are placed in separate cell. Strapped when necessary." Fifteenth, Seventeenth, Eighteenth, Nineteenth—"No provision for insane." Twentieth—"Insane transferred to Twenty-second street station." Twenty-first—Troughs for toilets. "No provision for insane." Twenty-second—cells are characterized as worse than stalls for horses. It is needless to recite more. Imagination can do the rest. I presume a few changes for the better in the accommodations of these lock-ups are made from time to time. But not very long ago a municipal bond issue was voted down that was intended to cover many betterments and as matters stand we can hope for little improvement until architectural changes or rebuilding is accomplished.

POLICE HANDLING.

It is needless to emphasize, what we must appreciate, that great damage is possible and is done to the insane by unskilled handling during the manifestations of excitement which characterizes many psychoses in their early stages; states of apprehension, fear and hallucinosis, irritability, suspicion, and clouding of consciousness may be present. The policeman in uniform is usually regarded by the patient as a menace. Often his handling results in a direct physical injury. Insane patients in these early stages many times experience a feeling of strangeness. Often partial insight into their own mental derangement is with them, and their own unavailing and misdirected efforts to make or seek explanation, coupled with their recognition of the fear and distress of those about, is added to by the shock of being handled with more or less force and thrown into a conveyance—labeled in the public mind with the foregone conclusion of guilt—the police patrol. When this experience is protracted for hours in some uncomfortable cell, followed, possibly by trial, before being conveyed to the Detention Hospital, we can imagine the impressions received. With those more amenable to control, or merely suspicious, we find deception used to some extent. They are inveigled to the door of the police station and left to exert their strength, both physical and mental, in endeavors to become released. These cases, especially, retain the impression

that they have been wrongly dealt with. The use of deception is quite prominent in the handling of a large number of cases, even when these patients are taken directly to the Detention Hospital by relatives or friends and often by representatives of organized charities. They come embittered to the state hospitals. If such means be used, they reason, there are, no doubt, more hidden purposes and this adds to their perplexity and resentment. We can say, of course, that many such incidents will always arise unforeseen and will be uncontrollable by any prescribed methods, but our efforts must be directed toward minimizing the possibility of their occurrence.

One advance in the handling of patients prior to their coming to the Cook County Psychopathic Hospital has been made recently. The hospital has the use of a County Hospital limousine to bring in women patients. It is a comfortable machine and is available from eight to nine a. m. to some time in the evening, but cannot be obtained late at night at the time when it could be used to the best advantage in preventing the patient from spending the night in cheerless or worse surroundings, or preventing a patrol wagon ride for her. This ambulance, in fact, is often called to the police station to get a woman held there. An effort has been made to have all police lieutenants direct officers to send for the hospital limousine, but on two occasions during my visits to the Psychopathic Hospital women have been brought there in patrol wagons. One officer said they "were going that way and might just as well pick her up." The other professed entire ignorance of any other provision for insane women. Ambulances are needed for continuous service and should be called direct to the scene of the patient's disturbance or apprehension even if she be in the hands of the police, and not to the police station. No special provision exists for men, but this is quite as urgently required, as men are usually more viciously handled by police, neighbors or family. The atrocities that occur would not happen so frequently if the facilities to obviate them were at hand. The matter is one for energetic education of the whole public, even including the administrators of general hospitals, as they have been known to engage police patrols to call for and transfer patients from their doors to the Psychopathic Hospital, their own machines being too good or their force not considered able to handle one insane person.

The Society for Mental Hygiene is responsible for the following story: A pathetic old man called at their office almost heartbroken. He had been sent from the office of the Clerk of the County Court where he had gone with his troubles. His wife had been mentally ill for some time and he was over seventy and quite decrepit. His wife would not leave the house because of her fears, and had finally gotten to the point where she was not willing that he should go out. It became necessary that she be committed. The family physician issued the certificate and the old man was told, after obtaining the necessary papers, to hand them to the nearest police station and they would see to the transportation of the patient to the Detention Hospital. A little later a patrol wagon drove up in front of his house with two uniformed policemen and already occupied by two drunken men. The man refused to allow them to take his wife and it was to report this situation to the County Clerk that he came to the Society for Mental Hygiene. They were able to obtain sufficient funds to secure a carriage and one of their nurses, unassisted, took this poor old lady to the hospital.

I wish to make this point here, that the handling of the insane at such times is as much a medical problem as any other aspect of their care or treatment during the later developments in their psychosis. Perhaps in some respects it is the most important phase of treatment as viewed by the patient himself. I wish to arouse you gentlemen to a full realization that the medical profession is deprived of the opportunity of rendering aid or continuing care of a patient at this critical juncture. Of course, I bear in mind that many cases of insanity develop that are never handled by medical men, or are not seen by them just prior to their apprehension and for that reason they are not guided directly to the agency having the proper jurisdiction and facilities—a psychopathic hospital. No conscientious physician would wish to lose sight of his insane patients until they are placed in fit surroundings. But no ambulance service, either public or private, is available equipped for such special service, as exists for surgical or other cases.

### MISTAKES OF COURTS.

As to methods of municipal courts, I constantly hear stories of treatment sometimes brutal and, if not brutal, certainly not enlightened treatment, and strangely unsuitable for insane people. Many of the cases coming to my own service tell of imprisonment in the House of Correction where fines have been worked out wholly or in part before the patient was recognized there as insane and sent to the Detention Hospital: 101 such cases occurred in 1914. In many instances the complaints leading to these imprisonments have been lodged by the patient's own family, first with the police sergeant, then with the arresting officer. Often the police examination is superficial, the only complainant being the arresting officer, or where more witnesses appear the examination is perhaps colored by the testimony of irate relatives or neighbors, and prompt disposition is made of the case, only to have it revert to the Detention Hospital after more symptoms of insanity are shown at the Bridewell. The Court of Domestic Relations occasionally sifts out by its meshes a case of incipient paresis, dementia praecox, or borderline case by having specialists constantly in attendance, and quite often secures a voluntary admission to a hospital for the insane. With less contact with the police, there would be less opportunity for mistakes by courts. The Personal Service Bureau of the Jewish Charities quite frequently comes in touch with insane individuals and occasionally employs a private conveyance to get them taken to the Detention Hospital.

### DETENTION PENDING COMMITTMENT.

Referring to the detention of patients pending commitment, I will state that there is only one Psychopathic Detention Hospital in Illinois, that of Cook County. This building recently erected is located near the Cook County Hospital at corner of Wood and Polk streets, on the County Hospital grounds. The building is well designed and equipped but lacks appropriation to fully man it. It has a capacity of 200 beds, but as the law only permits the detention of patients for ten days, pending commitment, the present rate of admission will not fill it. The county physician has his headquarters at the Detention Hospital and is its superintendent. He also has an office downtown and is called in consultation on private cases. He receives a salary of $3,500.00. The only other medical attendant provided for is a resident physician, who is a salaried interne receiving $900.00, room, board and laundry. He is subject to the county civil service. At the writer's last visit the position was vacant and at least two on the eligible list had refused or waived appointment on account of inadequate salary. Several graduate nurses, two or three pupil nurses and 22 attendants, both male and female, divided between three eight-hour shifts, constitute the remainder of the force. The building will require many more if all the floors are opened up. Only a comparatively small part of the building and equipment is now in use. The nursing and attending force are only in a few instances trained and equipped for this special field of nursing. The force is inelastic, being under County Civil Service and having no connection with a state hospital. This hampers work as it allows of little selection of material that has proved especially adaptable. If any were sick or left the service, the superintendent complains, he could not readily fill their places. This also hinders prompt handling of those cases of abuse of patients that are the bane of any service among the insane.

Admission to the Cook County Psychopathic Hospital, the present management claims, is very easy. A patient may voluntarily enter. Any patient brought in accompanied by a doctor's certificate is held pending the furnishing of regular papers, which consists of a sworn statement of a physician and witnesses as prescribed by law. The patient is then held until the following court day, which is usually Thursday.

### EXAMINATION AND CARE.

In the meantime, whatever examination is made is recorded in hasty notes by the intern. A more or less complete physical examination is given, depending on the interest in the case. The mental examination is not extensive, consisting mostly of incomplete descriptions of the patient's general appearance and manner and statements gleaned from his mental stream. As a rule no close or careful analysis is made of the case. The intern is forced to make all notations in long hand and, needless to say, these are quite scanty and unsystematic. The nurses' observa-

tions are wholly inadequate to convey a correct idea of the patient's mental phenomena. The records are retained at the Detention Hospital and are not available for any reference at the State Hospitals. The medical treatment is fairly complete. Sedatives are quite freely administered. Certainly there is no such abuse of these as often exists in the general hospitals in this city, which are almost without exception totally unfitted to care for excited and violent patients and where sedatives are sometimes given until the patient actually suffers an intoxication psychosis in addition to his other disabilities. For instance: Mrs. H., a maniacal case seen by me, had been given, prior to entering the Detention Hospital, bromides 30 gr. every two hours; morphin as often as necessary by hypodermic, gr. ¼; hyoscin, 1/100 gr. every four hours.

2. In a case of paresis reported to me, there had been given in the evening 30 gr. of veronal and 60 gr. of bromides. This order repeated in the morning.

COURT PROCEEDINGS.

Among the chief drawbacks in the system now in vogue in Cook County are the court proceedings. As a rule these are held once a week and until lately a vast majority of cases were committed by nominal jury trial to the various state hospitals, or otherwise disposed of. The judge, who usually presides, is, indeed, sympathetic and is quite skillful in untangling a few of the knots which come to him, yet lacks the time to investigate such cases and must rely entirely upon the scanty information read before him or elicited by him in a quick-fire interrogation of relatives and friends and the patient. Let us picture the court on a busy Thursday: At 8:30 the court convenes. Six jurors, one a physician, are present. Usually of late two medical men, constituting a commission, take their places. The witnesses step forward, the clerk of the court rises and swears them in in a few muttered words. The patient enters a side door accompanied by an attendant. The superintendent of the Detention Hospital steps before the court. He recites in a few sentences a bit of the personal history, behavior, symptoms or, perhaps, diagnosis, etc., of the patient and frequently winds up with the statement, "Your Honor, a very fit subject for institutional care." Instantly a witness is called, a few questions asked to ascertain often some of the many omitted pertinent facts, also to determine from the relatives if they are willing or desire to have the patient sent to a hospital. The Illinois Society for Mental Hygiene which endeavors to investigate these cases before they come into court, has its representative present, note-book in hand, and who may interpose a few words in regard to the financial or family concerns of the patient. The patient may be called; faced by the judge and jury or commission, surrounded by friends, neighbors, or erstwhile enemies, often by uniformed policemen, he attempts to make replies to the judge's questioning, or better, to his mind, breaks out in defense of his actions or otherwise betrays his mental condition, and before his statement is concluded he may be committed and labeled for some state hospital and the next case called. In his mind a mockery of justice has been performed. There naturally results an increase in his delusional ideas of his family or others because under oath they have made statements inimical to his cause or sworn to things he believes he never heard about. The jury or commission meanwhile perhaps has not uttered a word. Rarely does the judge give them more than a word or two of explanation. Rarely do they interpose questions or offer consent other than by silence. I have seen a jury consisting of women trying the women's cases, obviously bewildered by the rapid action of events, and curious only, in many cases. The cases of the bed patients are heard in court, then I have seen the judge and jury walk through the wards viewing the patients but not always identifying them as they pass.

LEGAL RECORDS AND INTERROGATORIES.

A physician required by law to act on the jury, sits at the judge's right hand: Into the document that reaches the state hospital—a copy of proceedings and order—is ordered written the "cause" of the patient's insanity, by inserting the *name of the psychosis* the patient is alleged to be suffering from. This illuminating document may read: "The cause is Paranoia" (Patient had paralysis agitans); "The cause is Traumatic Insanity" (Patient had dementia praecox) "The cause is Alcoholic Delirious Insanity" (Patient had epilepsy); "The cause is Confusional Insanity" (Patient had general paralysis); "The cause is Manic Depressive"

(found to be dementia praecox); "Senile Dementia" (found to be tabo-paresis). The Superintendent of the Detention Hospital is quick to disclaim any responsibility for the diagnoses inscribed. Certainly the document is obsolete and purely legal and non-informing. Often inaccuracies are made in the mere filling out of this paper. One frequent error is the misspelling of the patient's name. The phonetic system in many instances is used with the result that patients returning to state hospitals frequently may appear under four or five different names. This only confuses the search for information if one wishes to investigate records made during former residences. This document with the warrant is usually the only paper that reaches the state hospital. An interrogatory presumably filled out by the jury or physician acting on such, or the commission, is occasionally sent to the state hospitals, frequently arriving a week or so after the case has been analyzed and brought up for discussion by the staff there. The interrogatory entries at times bear evidence of more or less illiteracy, superstition, etc., showing that relatives or friends have filled them out to the best of their ability. At their best they are inadequate to give sufficient information. In a certain percentage of cases a typed verbatim copy of the testimony offered in the court is furnished, this arriving usually days or weeks after the patient's transfer to a hospital. The information usually is worthless. At one time the Illinois Society for Mental Hygiene, a philanthropic society privately supported and at present only operating in Cook County, would furnish a concise history in many cases and this came to hand fairly promptly but lately few have been received at the Chicago State Hospital. The superintendent, Elnora Thompson, advises that this was discontinued under the assurance from the superintendent of the Detention Hospital that he was forwarding information himself. These reports were the result of investigation by the Society's field workers who are nurses and are experienced, having worked in state hospitals. There are two attached to the county court and paid out of its funds.

### FORMS OF COMMITMENT

The Illinois law provides for voluntary commitments, commitment by jury or, *when no jury is demanded* and no occasion appears for it, the judge *must appoint a commission* of two qualified physicians in regular and active practice *to make a personal examination* of the patient and file with the Clerk of the Court a sworn report of the result of their inquiries, together with their conclusions and recommendations. The jury or commission must furnish the court in writing answers to the interrogatories that may be prescribed by the commission of public charities. I will comment here that judges should require that all necessary facts on which commitment is based, be recorded on these blanks or upon additional inserted pages. The blanks need improvement. As to patient's examination, a full personal examination of all the cases coming to the Detention Hospital would be a gigantic task for the members of any commission and would require all of their time and for which sufficient remuneration is not provided under the statutes.

### RECOMMENDATIONS FOR REORGANIZED DETENTION HOSPITAL.

Unquestionably the staff of the Detention Hospital should make these examinations but the staff should be increased and be authorized by law to do this work. The Cook County Court has been, up to the last month, the chief user of the jury form of commitment when a nominal commission took the place of the jury. This is because the Detention Hospital has become a dumping ground, and being insufficiently equipped, everything there is designed for celerity of action. Chicago, the home of diploma mills and marriage mills, is truly the home of the insanity mill. Manned by capable people as efficiency goes but not contributing toward scientific methods in analyzing and individualizing the problems of the insane, simply conducting a clearing house for insane hospitals, providing for the rapid handling of individuals showing anti-social and extra-social traits. We can hope that the new Psychopathic Hospital will soon be scientifically organized to better these conditions, but at present it is conducted on a time-saving efficiency plan largely, the court room and its attachés being a very essential part of its mechanism whereas they should be incidental. It would seem better to have this institution, built on such a scale, under the control of the State whether as a separate

organization or connected with the nearest State Hospital. An adequate staff could be uninterruptedly maintained and a large amount of duplication of work and records be avoided. Earlier treatment of insanity could be fostered, social service and scientific research promoted. The idea of such psychopathic hospitals scattered over the State is not new. Psychopathic wards in general hospitals have been also advocated. Unless the foregoing recommendations are realized, other changes in the law will be necessary to make the Cook County Psychopathic Hospital more than it is—a mere short-time detention ward.

### COMPLETE STATE CARE.

The statutes at the present expressly forbid the county care of insane patients after commitment and this practice should not be resumed. Let us hope that another expansion in the well-settled policy of State care for all insane will soon take place and adequate means be provided to establish psychopathic hospitals in different parts of the state.

### CONVEYANCE OF PATIENTS TO STATE HOSPITALS.

What may be termed a travesty in the treatment of the insane is the method of conveyance of patients from court to the different state hospitals. With what degree of real care the patient may have met with at the Detention Hospital, instantly this ends when the patients are remanded to the custody of the sheriff and hurried to the various depots for dispatch to the designated hospitals. After the court is over the patients are hurriedly dressed, deputy sheriffs are assigned to them, some are strapped with wristlets and waist bands and all are bundled into busses obtained from the county hospital or a nearby livery stable. They are then taken through the streets, often over rough ways, through gaping crowds and brought to the depot and removed from the busses, sometimes by force, and taken to the coaches of the train. There is no special provision on any railroad and there is no way of protecting these patients from public gaze, no comfort or skilled attention given them at any stage of their journey. They are often taken from beds in which they have lain for days or a week and are running a temperature, have weak pulses, sores on lips and tongues. The excited and quiet are not separated. One can imagine the bedlam that exists at these times. At the end of their journey they are hurried from the train and then walked to the hospital doors, or held at the depot until means for conveying them to the state hospital can be provided and often with a whoop and a shout, the blowing of auto horns, they arrive at the state hospital. Frequently the deputies cannot identify their charges by name, relying on the patient himself or reasoning by elimination. Ordinary shipping tags wired into a button-hole constitute a so-called improvement. Frequently the bailiffs smell of liquor. Women patients are usually brought with the men. There is often but one female escort to care for them. Dr. Bybee in 1910 wrote a vivid pen picture of his observations of the methods then in vogue. Very little has been changed since that time. Comparatively recently the Society for Mental Hygiene, by insistent demand, arranged with the county hospital authorities to use their ambulance for the conveyance of stretcher cases to the Chicago State Hospital. Such cases are quite well cared for.

Conditions all over the state are nearly as bad. Undoubtedly there is vast room for improvement in our methods of transferring patients after commitment. The law provides that the sheriff or deputy can take patients to the hospitals, or friends or relatives may be deputized. In either case we have unskilled people handling these patients. It was a slow evolution up to the time when female patients were required to be accompanied by a reputable female. We are not fearing now for the overt act of mal-treatment that a woman patient might be subject to, but our ideals in the care and treatment of the insane have advanced to a point when our measures must be altogether scientific, not legal, not purely custodial or administrative. There should be a special conveyance for the insane in Cook County to neighboring state hospitals. Special attendants must be provided. These should be carefully selected from the different state hospitals. A physician in New York State, with long experience with the conditions there, writes me that the state of affairs was little short of scandalous until such methods were inaugurated. In addition, Florida, Idaho, Kentucky, as well as other states, require

the superintendents of state hospitals to send trained attendants to accompany patients to the hospitals. Some other states, including Illinois, provide, beside those persons specifically designated, that any suitable person may be directed to act. Co-operation of county judges with the state authorities might result in immediate improvement.

SUMMARY OF RECOMMENDATIONS.

In conclusion, the following are recommended:

1. A thoroughly organized system of conveying all insane persons in the city of Chicago from their place of apprehension to the Detention Hospital should be established. For those picked up by the police or handled by others and who cannot be detained at the place of apprehension, special provision could be made at certain general hospitals for preliminary detention until taken to the Cook County Detention Hospital, or until a commission has met and examined and committed them direct to state hospitals.

2. Every effort should be made to keep insane people out of courts—all doubtful cases arriving there should be referred to psychopathic laboratories now operating in connection with some benches or to the Detention Hospital.

3. The Cook County Detention Hospital should be better organized or taken over by the state in conjunction with extension of similar service in other parts of Illinois.

4. The medical aspect of cases requiring commitment should be emphasized, the medical dictum practically final, the court relegated to a secondary position.

5. The preliminary examination should be more accurate and the records more complete.

6. The conveyance of patients to state hospitals should be restricted by law to trained attendants, and special traveling accommodations be provided where possible.

Lastly: The medical profession must inspire sympathy and a demand for these improvements in service as at present the greater portion of the public is in ignorance or holds in abhorrence the problems of the insane; and I may add this latter feeling is increased by the medieval attitude of some public officials and the overdrawn exploitation of gruesome occurrences by some of the public press.

## RELAXATION OF MUSCLES IN THE TREATMENT OF FRACTURES.*

A. J. GRAHAM, M. D.,
CHICAGO.

A fracture being a typical injury it necessarily calls for special methods of healing. The modern methods of permanent extention date back to the eleventh century. Upon the introduction of plaster of Paris the fracture was looked upon

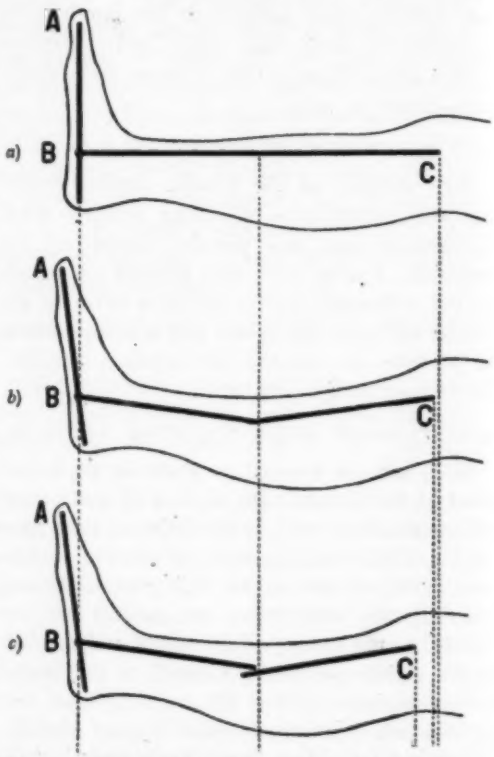


Fig. 1. Recurvation From Neglected Treatment. Foot Should Be at Right Angles With Leg.

merely as an inconvenience for a short time. Some noticed that plaster of Paris was not entirely satisfactory, leaving the affected part, or joint, in a somewhat paralyzed position, giving rise to shortening and stiffness of the neighboring joint.

Upon the advent of the radiograph the profession was astounded to find the enormity of improper union, and the faults of a plaster of Paris bandage were found to be that sometimes

*Read at the Englewood Branch, Chicago Medical Society, Feb. 2, 1915.

it became too tight or too loose, was too long or too short, caused pressure here and there, and often caused immobilization of the joints.

The extention treatment introduced by Baudenhauer for all extremity fractures is consid-

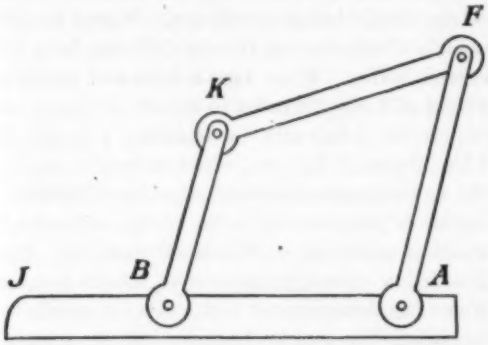


Fig. 2. Scheme of Zuppinger's Thigh Splint.

ered indispensable. Later the methods of ivory pegs and nails with massage and mobilization aided to prevent atrophy of muscles and stiffness of joint.

*Tension.*—The peculiarities of elasticity lie in the strength of molecules—either pushed together or separated. As soon as the working force stops the molecules return to their original form. If the limits of elasticity are reached in fragile bodies, as glass, steel, and bone, we find a separation along a fracture plane. If we exceed the

Fig. 3. Zuppinger's Thigh Splint.

elasticity in muscle tension we have a fracture. So pressure alone does not cause fracture, but it may also be due to tension. We may have, therefore, tearing, bending, or torsion fractures, according to the way the force is applied.

A study of the force which causes any injury will often give profitable information in treating it. How far the patient fell; in what position he was when he struck; and upon what he fell are all important; also the direction from which a missile came, and with what force it struck the patient. This particularly applies to head injuries, fractures and crushing injuries of the extremities and internal injuries.

*Different Forms of Dislocations.*—Lateral, longitudinal, angular and combination. If the fracture is complete with broad bones, shortening results. If rotation of fragments occurs, the dislocation is termed peripheral. In a fracture of clean, long bones with lateral dislocation, shortening must inevitably result.

Dislocations are primary, if due to trauma, such as those produced by over-riding in impac-

Fig. 4. Zuppinger's Automatic Extension Apparatus for Fracture of Shaft of Femur.

tion, and angular ones, produced by bending, twisting or torsion. In secondary dislocation the musculature is responsible for the displacement. If at the point of fracture, the fragments do not brace against each other, the muscle tension will result in over-riding. By far the most important effect of the muscle on the fracture is the secondary dislocation. It is noticeable as soon as the deformity. It is the most important hindrance to straightening out the dislocation, as shown in the adduction of upper humerus or femur fragments, flexion of upper fragments of radius, and in the over-riding and shortening of all oblique fractures.

There is another type of dislocation which might be called tertiary, or that which arises

through neglected treatment, as failing to put the foot at right angles with the leg in fractures of the leg. See Fig. 1.

The cause of all cases is prolonged muscle tension, or sudden stimulation of the muscle. The

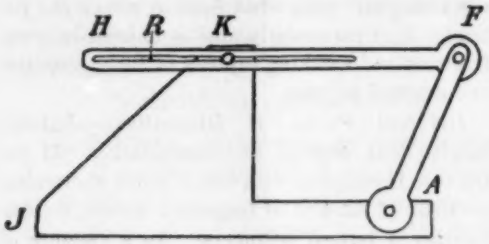


Fig. 5. Scheme of Zuppinger's Leg Splint.

location of these fragments becomes easy as the delicacy of palpation improves upon examination. The enormity of the dislocation is shown by the x-ray.

*Physiology of Muscle.*—If, under physiological conditions, a muscle wants to shorten itself, it can not contract without doing mechanical work. According to its position and that of the joints over which the muscle draws is its work varied. The strength of the muscle is compared with the work it must do and the shortening to be obtained to do it. The working possibilities exerted by the muscles in a fracture of the humerus is enormous for a short time.

All muscles on a live limb, at least during working hours, are under a certain tonus, i. e., finding themselves in an elastic condition, they

Fig. 6. Zuppinger's Leg Splint.

would have to contract, if their points of attachments were not fixed points.

*Contraction, Stimulation, Shortening, Tension.*—A muscle is either active or inactive. That does not mean that a relaxed muscle is inactive, or an active one stretched. The condition of tension depends upon outside conditions, e. g., the inactive muscle weighted down becomes stretched. On the other hand an unweighted muscle being stimulated contracts, but remains relaxed.

A muscle is an elastic body, but not in the sense of the elastic bodies of physics. Muscle is also capable of stimulation, thereby differing from inorganic bodies. If we take a wire and attach a weight of 1 Kg., in order to stretch it 1 mm., we can stretch it two mm. by attaching a weight of 2 Kg., 3 mm., 3 Kg., etc., which is Hook's law, or, "In an inorganic elastic body the size of its deformation is proportional to the energy expended," which is called the coefficient of elasticity. But Hook's law cannot be applied to muscle because Weber has demonstrated that a relaxed muscle by increasing the weight becomes less stretchable.

Fig. 7. Zuppinger's Automatic Extension Apparatus for Fracture of Leg.

The necessary weight for the elastic stretching of muscle is proportional to the square of the distance of the attempted stretching, or 1 Cm. needs 1 Kg.; 2 Cm., 4 Kg., and 3 Cm., 9 Kg.—*Weber's Law.*

In connection with this there are two facts:

1. If an unweighted and freely movable muscle is stimulated it contracts, but remains relaxed.

2. If a muscle attached between two fixed points is stimulated, it stretches but does not contract on stimulation.

According to our first law it is a positive fact that stimulation of muscle does decrease its original dimensions.

On the contrary, what happens through the

stimulation with the coefficient of elasticity is not explainable in a few words. Under certain conditions it remains constant, while under others, it seems to be increasing with the increasing stimulation to such an extent as to have a paradoxical muscle twitching.

So we do not follow Hook's law,

$$\frac{\text{Lengthening}}{\text{Weight}} \text{ as to the coefficient of}$$

elasticity of muscle, but Weber's law,

$$\frac{\text{Lengthening}^2}{\text{Weight}} = \frac{1\ \text{Cm.}^2}{1\ \text{Kg.}}$$

The effect of weighting and stimulation on the living cannot be compared with that of a prepared muscle. On a live muscle weighting has the same influence as stimulation. Because this weighting comes to act independent of the will, it can be called a reflex stimulation. The will cannot counteract this stimulation.

*Stimulation Through Fracture.*—A fracture acts on the musculature as a stimulus. We use the expression that muscle tonus is increased, or that the fracture gives a pathological hypertonus. From this we have two facts:

1. The fact that the present fracture means a stimulation to the involved musculature, or a chronic muscle spasm.

2. The same fact that works in that manner that all other stimuli, especially weighting, causes a higher stimulation than exists under normal conditions.

It is necessary to remember that attention must be paid to the fact that a fracture does not consist alone of a broken or more or less displaced bone, but is accompanied by extravasation of blood. Besides the danger of infection, draining these hematomas is said to have a bad effect upon the process of repair for the presence of these extravasates expedites the building of callus. One disadvantage, however is the resulting blood and lymph stasis which they cause.

*Shortening of Muscle.*—The lack of nutrition due to blood and lymph stasis may cause shortening of muscle. Aside from the separation of the continuity of bone, and the destruction of the physiological firmness, the most important element in the pathology is the destruction of the physiological equilibrium of the musculature. Take a joint of the healthy limb not encumbered by external weight, the physiological tonus of each muscle would lead to the corresponding joint motion, if also the antagonist were not under the same tonus. The tonus of the different muscles in connection with the balance of the elastic peculiarities is so divided that in the healthy limb the least change in the position of the joint causes a muscle tension. This is the sleeping position, or for the majority of joints of the extremities the position of semi-flexion. An individual with healthy muscles and nerves unconsciously brings his joints into that position in which the entire muscle tension is least. Difference in position in sleeping is explainable on the ground that in many joints the limits of area of least tension is very great.

Disturbances of bone firmness means, therefore, a disturbance of muscle equilibrium. If a bone is broken, the muscle follows its tonus in that it shortens and displaces those bone fragments to which its tendons are fastened.

In the first hour after trauma we have a so-called muscle stupor, whereby the tonus is probably diminished. Even if it is unchanged, we have the fact that shortening of muscle causes decrease in tension. The muscle equilibrium is destroyed in people with cramps in the early morning. Here the continued relaxation has so heightened the irritability of muscle, that a slight stimulus brings forth the condition of cramp by reflex action. So the trauma of some fractures acting as a stimulus to reflex action causes such cramps that narcotics are necessary.

*Therapy.*—Muscle tension is the cause of most deformity. In order not to have muscle tension, you have to remove irritability from the affected part. After a few hours we have compensatory shortening, which increases up to the third day. The result thereof is to prevent antagonistic movements; that is, if a muscle is an extensor, complete flexion is impossible; if a supinator it cannot entirely pronate. It is injurious to let the muscles go till swelling has subsided for it increases the possibility of cramp, and also the so-called nutritive or compensatory shortening.

The weighting must not be unsteady, nor rapidly increased or decreased. A shortening should

never be corrected by a sudden jerk, nor by a backward or forward movement, for by such a maneuver the muscle becomes highly stimulated, so that its tension is increased, and you lose the extension already obtained.

*Muscle Tension.*—Inactivity of muscle. It is unfavorable to have the muscle inactive because it results in atrophy. Nevertheless it is not as destructive as compensatory shortening, nor the degenerative shortening due to overloading. Whereas inactivity, which lasts only a few weeks, leaves behind no irreparable atrophy, inactivity for months also leaves no permanent results, if only the mechanical conditions for the restoration are produced.

As soon as the callus has the required compactness, it is advisable to have small active movements. By movements right from the beginning atrophy is prevented.

*Rest and Semiflexion.*—Nature has given us a condition in which the entire tension of all muscles must be least, viz.: sleep. It is often necessary to have a small deviation of a joint from its extreme position in order to avoid the feeling of extreme tension. The least combined tension of muscle is where the involved joint is in the center of gravity. We designate such a mid-point as semiflexion. Therefore, it gives us a remedy to reduce to a minimum the tension of the entire musculature passing over a bone.

The best proof clinically is the extension treatment of the thigh fracture, which in full extension of the knee joint demands a weighting of 25-30 kilograms, while in the semiflexed position it takes only five or six kilograms, because tension is taken off.

*Various Forms of Treatments.*—Massage and active and passive movements are necessary and in general, the older the patient the earlier it becomes necessary to begin, in order to regain the complete function of the musculature.

Splints are satisfactory in that lateral and peripheral dislocations may be corrected directly by them. We have leverage on the leg from the foot, in fact every joint gives such leverage for the adjoining joint, if the interposing joint is not to be stretched. Semiflexion when leverage is used, is contraindicated.

*The Circular Plaster Cast.*—If we disregard the plaster cast altogether in various fractures of the leg, it remains for the practitioner to lose his case, it going to the hospital. Where no extension can be applied, a cast is indicated for rest. As long as the practicing physician will rely upon plaster of Paris casts alone, each clinic will be richly supplied with Roentgen material. The judgments of accident statistics do not have their basis alone in deformity, but in atrophy through inactivity of muscles and stiffness and degeneration of capsular tissues of joints due to prolonged immobilization. Another case of deception by casts is where we have a dorsal or longitudinal dislocation or an ulnar abduction in a Colles' fracture take place under the cast resulting in useless fingers from fixation of tendons.

If the cast is changed too often the callus is torn and loosened and a longer time is required for a permanent one to form. In general the rule holds that a dislocation is less easier remedied, the longer the time after the fracture, except small angular dislocations, which are best corrected about the third week, when the callus is not so friable as in the beginning.

*Extension Bandage.*—Permanent extension. We choose permanent extension for all those fractures which would retard the function of the limb by shortening. The old classical extension demanded the extreme position of the joint. The best example of this is seen in the thigh with the extended knee and hip joint. Even a healthy person in this position would not endure the painful feeling of tension in the flexors of the thigh. This feeling is not noticed with a broken bone, because the tension is lost in the shortening which has arisen due to this tension. With permanent extension we derive the results of muscle relaxation as under moderate weighting in a favorable position of the joint, the muscle loses its pathological hypertonus.

*Counter Extension.*—Counter extension is obtained by raising the foot of the bed, or in children by hanging the limb vertically. The objection to this is that the weight may swing and cause jerking. For extremities in children a woolen shawl fastened under the arm and drawn towards the head is used. If an arm, the counter pull is made with an axillary bandage. Objectionable also is the extension made against the sole of the healthy foot. The patient pulls himself up with a jerk and disturbs the fracture. Any uncomfortable position gives the best possible cause to question the success of the extension treatment.

COLLES' FRACTURE.

The muscles directly attached to the fragments in Colles' fracture are:

To the anterior surface of radius—the pronator quadratus.

To the tip of the styloid process of the ulna—the supinator longus.

An examination of the majority of Colles' fracture plates will show a silver fork deformity, i. e., adduction of the lower fragment of the radius and a rotation of the lower end of this fragment dorsally. It is not so much an abduction as a shifting of the line of the limb toward the thumb side, viz.: the bayonet deformity. The cause of these deformities must be the traction of the muscles passing over the fracture, it allowing the muscles of the radial side to contract while those of the ulnar side cannot do so. Comparing the musculature of the forearm divided in the median line some kind of an equilibrium might be maintained by the two carpi flexors and the three carpi extensors on their four corners, but upon fracture the preponderance is thrown to the radial side for the following reasons: (1) The thumb has the strongest muscles, besides making three to this side, while the ulnar side has only two digits. (2) The greater mass of the muscles of the forearm on being the radial side. (3) The supinator longus having direct attachment to the fragment.

The reason for the dorsal elevation of the carpus is that the force causing fracture was applied to the thenar and hypothenar eminences, and the extensor muscles contracted holding the carpus elevated dorsally.

The indication, then, is for adduction and flexion, or the resultant, the "pistol" position. With the hand as the lever, the point of the ulna, as the fulcrum and the musculature to the radial side as the weight, the following muscles must be relaxed: The radial group, the supinator longus, the extensor carpi radialis longior and brevior; the deep oblique group of extensors, the abductor longus pollicis and the extensor brevis pollicis, as well as the deep straight group; the extensor longus pollicis and the extensor indicis; in fact all those extensors and flexors to the radial side.

*For the flexion,* with the hand as the lever, the coapted fragments as the fulcrum and the extensors as the weight, the following muscles must be relaxed: all the extensors of the digits, the extensor carpi ulnaris, and the adductor longus pollicis, which form the musculature of the middle of the dorsum of the forearm.

Placing and fixing the hand in this position will soon exhaust these muscles and either plaster of Paris or padded splints, built up, this position may be maintained.

FRACTURE OF THE SHAFT OF THE FEMUR.

In the fracture of the thigh the groups of muscles that would act to produce dislocation of the fragments are:

(1) The anterior group—the quadriceps femoris, consisting of its four elements, tending chiefly to produce posterior bowing.

(2) The internal or adductor group—the pectineus, adductor brevis, tending to deflect fragments in the upper third; the adductor longus in the middle or lower third and the adductor magnus and gracilis in the lower third.

(3) The posterior group, the flexors. To the outer-side the biceps forcing the fragments upwards and inwards, while the semi-membranosus and semi-tendinosus forces them upwards and outwards. If the limb is in adduction, place it in slight abduction to exhaust the adductors.

*Zuppinger's Splint for the Fracture of the Femur.**—The counter extension is carried by a splint back of the thigh, the tuber ischii resting against it as in sitting on an edge. Imagine the pelvis a fixed point. By bandaging the leg and the knee joint, the pull is carried to the lower fragment of the femur. If all the muscles of the thigh are put on tension the lower fragment will follow our traction without any difficulty. There are some powerful muscles here and they offer considerable opposition to stretching.

Steinman placed a nail through the femur fragment and later modified it by placing it through the head of the tibia. This gives an ideal point of attachment but has the objection of possible infection of the hematoma, or injury to the joint structure, or changes due to the disturbances of joint pressure.

It is necessary to take into consideration the adductors pulling the lower fragment in. This is corrected by placing the line of extension in the abducted position. If the adductors are not acting to produce this dislocation it is foolish to call them into play by abduction.

*Description of the Splint.*—See Fig. 2. This

*H. Zuppinger: Knochenbrüchen.

shows a square with jointed corners. If you place this vertically, it will fall over towards the right, point K will move away from point J. If you connect point K with point J with an elastic element (spring or rubber tube) the top of the square will also drop on account of the weighting of the bars, BK, KF, and FA, but only so far until increasing elastic power of the bar, JK has its equalibrium. This is the main thought of Zuppinger's splint.

Now at point J the tuber ischii comes against the splint and on the corner K, the knee lies, and at F the foot is fastened. The elastic element JK are the muscles of the upper thigh. Their tension prevents the falling over to the front of the apparatus and that power whereby the apparatus together with the leg strives to fall forward, expands the upper thigh musculature and thereby lifts the longitudinal dislocation.

This power can be regulated; the nearer you put A to B the greater it is. It is obvious that the hip joint as well as the knee joint are in semi-flexion.

LEG EXTENSION.

Here there are only two movable joints—H and F, while K is a button, which, together with the slit R, makes it movable. This system if put in a vertical position will immediately drop forward toward the right. But thereby the point F passes away from K until the H moves in the slit R until it strikes the button, but we do not let it come that far. We stretch an elastic element from K to F. Now if the splint goes forwards towards the right and the distance K and F increases, the extension of the elastic elements K and F rises and the system comes to rest when the tension of the elements of that power keeps its equilibrium which tries to enlarge the distance KF.

On the space FK the leg lies. At F the foot is fixed. The elastic elements are the muscles of the leg. Their tension holds back the forward falling of the apparatus and the power whereby the apparatus together with the leg strives to fall forward lifts the longitudinal dislocation. Here also the power can be regulated. It is larger the nearer A is moved toward the foot of K. Here, also, you see that the knee is semi-flexed. Now in connection with this, if you place the foot-board in a somewhat slanting position the ankle will go into semi-flexion also.

What is particularly to be mentioned in Zuppinger's splint is as follows: The patient lies in a more comfortable physiological position, which he will be able to keep for some time. Also, you can start movements of the knee joint by light massage, which will not affect the draft of the weights. Should the foot fall too deep, or if the end H will tighten itself by button K, you simply pull the string between the foot and the foot-board tighter and you get the original position again. The pull remains constant. That is why they call this an automatic extension apparatus.

It has been proven that semi-flexion takes from one-third to one-fifth less weight. Ten pounds is enough if the knee and hip are in semi-flexion.

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## NITROUS OXIDE AND OXYGEN ANALGESIA FOR OBSTETRICS FROM THE ANESTHETISTS VIEWPOINT.*

E. O. Luther, D.D. S.
CHICAGO.

The necessity for relief from the intense prolonged pain and nervous strain incident to labor has long been recognized by the medical profession. Experiments for relief have been almost unlimited, the latest and apparently most popular of which is scopolamin and morphin. This is not a new combination; most of you have used it and each has formed his own opinion of the drug. For best results it must be limited to hospital work and requires great care in the details of administration.

Nitrous oxide has the advantage of being applicable to all cases, places and conditions. It is as well used in the home as the hospital, is not dangerous, and has no bad after effects.

Nitrous oxide and oxygen with or without an ether sequence is not a new anesthetic, but the method of giving it and the apparatus used to administer have done much to improve and make it the present ideal anesthetic.

To begin with I wish to state that I consider the advantageous results to be gained by the use of nitrous oxide and oxygen in obstetrics only limited by the lack of perfect technique on the part of the administrator.

Out of 54 cases in which this anesthetic was given, either by myself or Mrs. Luther, I wish

*Read before the Englewood Branch, Chicago Medical Society, May 4, 1915.

to give the history of seven, which will include normal and abnormal cases from which to draw a definite conclusion.

The first case I wish to give Mrs. Luther the credit for administering. It was one of the first cases where nitrous oxide and oxygen analgesia was given in the city of Chicago for obstetrics. It was cited by Dr. Frank W. Lynch in the March 6 number of the JOURNAL as being the first case he saw using this method. This case is very interesting because of its historical importance as well as the abnormal conditions involved.

It was given to Mrs. Lee Doty, daughter of former State Senator A. C. Clark, who invented the apparatus which, with its attachment for vaporized ether sequence, was used in this case.

History of case as given by Mrs. Luther:

Case 1. Patient in labor for some time before I commenced analgesia, then in second stage with two fingers dilatation and complete effacement. I gave deep analgesia, 90% $N_2O$, 10% O. Contractions continued with the same regularity but the patient did not complain of the pain, except at times she asked for more gas. Time of analgesia, 1½ hours. 90% $N_2O$, 10% O plus 10% ether sequence given, patient completely anesthetized. High forceps used with no results. I then let patient regain consciousness, only keeping her in the analgesic stage, 90% $N_2O$, 10% O for nearly an hour. Then we started complete anesthetic for pubiotomy, giving 90% $N_2O$, 10% O and ether sequence gradually to 50%. After the incision (about ten minutes in all) patient received about 20% ether sequence until birth. Ether discontinued and patient returned to analgesic stage before stitches were completed. This stage was continued till after the placenta was delivered.

Because of the great length of labor period, patient required very little oxygen but needed more nitrous oxide to deaden the pain. Time of analgesia, five hours anesthetic complete, 3 hours and 40 minutes. Left patient an hour after birth eating breakfast.

Case 2. Patient aged 27 years. Date, Sept. 25, 1913.

Patient with exopthalmic goitre. Pulse during pregnancy average about 120. In the seventh month the patient had a severe attack of appendicitis.

Started analgesia at the beginning of the second stage. Gave 60% $N_2O$ and 40% O. This mixture of gases was not changed. Pains continued with hard contractions during entire length of analgesia. Patient in this stage for six hours. Complete anesthetic administered and high forceps used. Time of complete anesthetic, 45 minutes.

At birth the child was somewhat cyanotic so before cutting the cord I asked permission to give the mother pure oxygen, thereby giving the baby a brighter circulation. The cord was cut and tied and the placenta normally expressed. The patient awakened on the table and after being dressed was removed to her bed and allowed to have a glass of milk and a graham cracker, which was repeated in thirty minutes.

Case 3. Age of patient, 27 years. Normal.

I was called in the second stage of labor. Patient had been in labor for 26 hours. I gave full $N_2O$, until the patient was in deep analgesia, then gradually gave oxygen to 30%, this being decreased between the pains. The analgesia lasted for two hours. I gave a complete anesthetic for birth. Birth normal. Membranes ruptured at delivery. Stitches were inserted after birth in analgesic stage.

Case 4. Aged 42 years (12 years since last child birth).

Gave deep analgesia for labor, 90% $N_2O$ and 10% O. For birth complete anesthesia was used with ether sequence, 95% $N_2O$, 5% O and 50% ether sequence, with all valves closed, using rebreathing much of the time. Forceps were used. Baby a little blue at birth, gave pure oxygen through mother to babe and in less than five minutes the baby's color was perfect and the cord tied. I then continued anesthesia, giving 90% $N_2O$, 10% O and 30% ether sequence until the placenta was expressed. Then discontinued ether sequence and increased oxygen gradually from 50% until about ten inhalations of pure oxygen were given. Length of complete anesthesia, 45 minutes total time given, 3 hours and 15 minutes.

Case 5. Aged 23 years; normal primipara.

Started analgesia in second stage. Membranes ruptured. Contractions were very regular, one minute apart and firm. Started with 95% $N_2O$ and 5% O, increasing to 10 and 15% O between pains. Normal birth in 30 minutes. Patient said she felt no pain after the analgesia was commenced, but it should have been commenced somewhat sooner.

Case 6. Aged 26 years. History: First baby born dead after 92 hours labor. Second baby born after 36 hours labor. High forceps. Third baby—Mother very nervous, probably due to previous experience. I started analgesia early, about one finger dilatation, 90% $N_2O$ and 10% O. This mixture was continued throughout. Normal birth in 45 minutes. Analgesia was continued till placenta was expressed and six cervical stitches taken.

Case 7. Aged 28 years. History: Patient had a miscarriage due to scarlet fever. In labor 48 hours.

Second pregnancy: Labor 26 hours.

Third pregnancy: Condition—Patient very ill all during pregnancy. Ulcers of the stomach were diagnosed. In the fourth month of pregnancy she developed asthma, therefore we used the face or surgical inhaler. Commenced analgesia early, less than two fingers dilatation, 90% $N_2O$ and 10% O. During analgesia I occasionally gave 50% O for one or two inhalations then back to the former mixture. Normal birth, 1 hour 45 minutes. No stitches.

In conclusion I will say I have not had a single case of nausea or complications of any

kind, either during or after the analgesia. The severe pain of labor is entirely done away with and a normal birth seems to take place in very much less time than usual.

All of our analgesia babies are alive and very active. To quote the mothers: "It is a very pleasant way to have babies. I know this through the quoting of mothers, including my own wife, to whom I gave the analgesia.

434 East Sixty-first street.

## THE ABBOTT ALKALOIDAL COMPANY CHANGES ITS NAME.

The Abbott Alkaloidal Company has issued the following important and significant statement:

Owing to the rapid expansion and broad generalization of its business as manufacturing and importing chemists, the Abbott Alkaloidal Company has deemed it expedient to change its incorporate name to The Abbott Laboratories, and has done so. No change in personnel or policies. Our business is to serve the professions, through the general channels of trade, or direct (at the most convenient point) as best serves their convenience. Price list on request.

For a number of years this company has been broadening out and enlarging the scope of its activities. As most readers of this journal will remember, some four or five years ago it entered the biologic field and now puts out a full line of serums, antitoxins, vaccines, and similar products, both for human and veterinary practice. Also, it is engaged in the manufacture of pure chemicals and is constantly adding to its already large line of pharmaceutical products, many of which are not distinctively alkaloidal.

It is only fitting and proper, therefore, that a name should be adopted, which is broad enough to cover all the activities of this progressive, up-to-date American enterprise.

## THYROIDS.

There are a few specific medicines. Thyroids is one of them. To get Thyroid effects, however, reliable Thyroids should be employed. The physician should insure his patient and himself by demanding Armour's when prescribing Thyroids. Armour's Thyroid products are made from selected fresh material. The glands are carefully dried at a low temperature. The powder is analyzed and made to run uniformly 0.2 per cent of iodin in thyroid combination. Physicians interested in the standardization of thyroids should write to Armour and Company for reprint of Articles by Seidell of the Hygienic Laboratory and Fenger of the Armour Laboratory, who worked in conjunction. Armour and Company supply Thyroids in powder, 2-grain, 1-grain and ¼-grain tablets.

## EARLY USE OF SAFETY GOGGLES.

The earliest record of systematic eye protection, according to G. W. Keller of T. A. Willson & Co., Inc., Reading, Pa., is that of the Crane Company, Chicago, which in 1897 began to provide eye protectors for its men. In 1898 the company put this work on a systematic basis, giving the glasses to the men free of charge, and requiring operators, as far as possible at that time, to wear glasses constantly when they were exposed to flying bits of metal, emery, or to glare and hot metal. Dr. A. M. Harvey, who is still chief surgeon of the company, was the originator of the plan. The Crane Company posted signs conspicuously at various points in the shop, drawing the attention of the men to the necessity of using glasses and the fact that the glasses were provided by the company without cost.—*The Iron Age*, April 22, 1915.

## THE GLORIOUS PANOPLY OF WAR—PRETTY SOON

And they call that fighting
Now put on your anti-asphyxiation helmet and run along!
GAS HOSE
SMOKE DISPELLER
HAND GRENADES

—*Courtesy of Mr. Bradley and the Chicago Daily News.*

Can This Be Our Old Friend—Anoci Association?

# ILLINOIS MEDICAL JOURNAL

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JUNE, 1915


## Editorials

### THE ANNUAL MEETING.

One of the pleasant memories for some eight hundred members of the Illinois Medical Society will be that of the annual meeting in Springfield, May 18.

It was a gala week that should be marked by red letters in the calendar of the society, and those attending will long remember the time spent in our capital city. The program was excellent and was ably presented by all the sections.

There were many features of this convention which must not go by unnoticed—one of which was the efficiency of the public policy committee. On Sunday evening preceding the annual meeting many of the pulpits of Springfield were filled by members of the society, talking on various public health topics. This was followed during the week by talks on public safety, "Safety First Day." Several talks were given to the school children. These sermons or lectures were all interesting and the appreciation of Springfield was shown by very large audiences, which greeted the speakers in every instance. The committee is to be commended for its splendid work, and it is hoped the work this year will prove as efficient.

The public health and hygiene section, while not a new section, has grown with such rapid strides that under existing conditions and popularity of the subject, it will soon rival either of the other sections.

Preventive medicine is coming into its heritage, and now demands the study which has so long been denied it by both college and society.

Three years ago it seemed impossible that a new section could be added to the programs of our state society, and in so short a time take its place and compare well with the older sections. The society's thanks are due to the men who have undertaken to educate us in this most important and popular branch of medicine.

That function of our society which apparently is mostly demanded, made its first real advance this year. The society must be congratulated upon the work of its medico-legal committee. Both Dr. C. B. King, chairman of the committee, and Mr. Folonie, general counsel, have given unstinted time and labor to this work during the last year, and have successfully defended, during that time, nearly one hundred malpractice cases. This committee, together with a special committee, has made a general survey of medical defense as carried on in other states, and its report is flattering to the service given by the Illinois Society. The by-laws were amended as per the request of the committee, and the larger committee will continue its work of survey for another year. The society wants the best and will have it.

To the delight of every one present, the house of delegates adopted a new constitution and by-laws, as reported and recommended by its special committee on constitution and by-laws. The society has been five years in freeing itself from an ancient, archaic constitution and by-laws, which never were satisfactory and had finally become unendurable. Only the members of the committee and the council know the trials undergone by the members of that committee, and again the society is to be congratulated upon the enactment of new laws.

It was clearly demonstrated in the work accomplished by this committee that when a committee really wished to do constructive work, having the interest of the society at heart, they could accomplish results, although there were divers opinions on many topics.

A phenomenal feature of this meeting—and

not the least important by any means—was the several alumni dinners. Some of the alumni associations had the largest attendance here on record, and goodfellowship reigned supreme. We believe much of the success of this annual session was owing to the good will expressed at these dinners.

The most pleasant feature to record was the genial, hearty reception of the members by both the profession and laity of Springfield. Our committee on arrangements and the members of Springfield simply gave us everything available and looked to every comfort of their guests. When it comes to entertainers, we "place Springfield against all comers."

## A. M. A. MEETING.

Are you going to the annual meeting of the A. M. A. in San Francisco. Every member of the Illinois State Medical Society should attend this great medical convention.

There are a large number of other medical conventions to be held in San Francisco during the next few weeks, and those going to the A. M. A. meeting will have the opportunity of attending other meetings, which are sure to be interesting. Among the meetings to be held in the Golden Gate city are:

American Medical Association, June 21 to 26, inclusive, 1915.

Pacific Coast Oto-Ophthalmological Society, June 15, 16 and 17, 1915.

American Association, Milk Commissions, June 17, 1915.

Pan-American Medical Congress, June 17, 18 and 19, 1915.

American Climatological and Clinical Association, June 18 and 19, 1915.

American Association of Medical Examiners, June 21, 1915.

American Therapeutic Society, June 21 and 22, 1915.

American Proctologic Society, June 21 and 22, 1915.

Pacific Association of Railway Surgeons, June 24, 25 and 26, 1915.

American Academy of Medicine, June 25 to 28, inclusive, 1915.

But attending these medical conventions is not the only reason you should go—every medical man owes himself at least an annual vacation. You are cheating yourself if you do not take at least a month for recreation, and you are probably cheating your patients if you do not spend some time away from your professional work. Any man can do better work after taking play days; and a doctor should be in a better physical condition and more ready to assume the duties of an exacting professional calling.

## NEEDED REVISION OF HEALTH LAWS AND HEALTH ORGANIZATION IN ILLINOIS.

A full recognition of the need of improvement must precede every important reform. A definite conclusion as to the extent and nature of desirable improvements, is a long step toward bringing them about.

Within the past few weeks, there has been given out to the public press from the United States Public Health Service, the resume of a report on public health laws and public health conditions in Illinois, based upon investigations of Dr. S. D. Grubbs extending over several months. This report is not particularly complimentary to Illinois. It strongly recommends radical changes in the sanitary laws; important changes in the organization and methods of the State Board of Health and a decidedly altered attitude in public health matters on the part of the people.

The very important feature of the report, however, is that its recommendations are almost identical with those previously made by the present State Board of Health, indicating perfect agreement between the board and the federal public health department as to the constructive program, which must be carried out to place Illinois in the forefront of progressive states. In fact, at the time Dr. Grubbs' report was given to the public, most of the changes and improvements recommended were in one way or another before the General Assembly and the State Board of Health was energetically engaged in attempting to secure the passage of the laws making sanitary reorganization possible.

During last autumn, the board laid before the Efficiency and Economy Committee of the General Assembly a plan of co-ordination of all existing state agencies having directly or indirectly

to do with the public health, and reorganizing the State Board of Health in such a manner as to divorce the department of medical licensure from that of public health and to separate the various functions of the board into divisions and bureaus. The plan submitted by the board, co-ordinated the public health functions of such organizations as the State Water Survey, the State Food Commissioner and the Food Standard Commission under the control of the State Board of Health and also provided for the co-ordination of such examining and licensing bodies as those for nurses, pharmacists, dentists and barbers with the department of licensure of the board.

There were also provided a bureau of medical inspection, with divisions of contagious disease control, of tuberculosis, of child hygiene and school inspection, with laboratories for the diagnosis of communicable disease; a bureau of vital statistics, which, with a new birth and death law, would at once place Illinois among the registration states; a bureau of sanitary engineering, which the board has never had in the past, and a bureau of food and drug inspection.

In its annual message to the governor, submitted last December, the State Board of Health made a number of recommendations for legislation and for consideration which, if acted upon, and in the event of failure of passage of the bill submitted by the Efficiency and Economy Commission, would bring about many of needed changes which are now recommended by the federal report.

In addition to the co-ordination of state health agencies, the board recommended the division of the state into sanitary districts, each with its full time medical health officer; the establishment of a bureau of sanitary engineering with engineering and research laboratories; a state-wide campaign of education including a traveling public health exhibit; the creation of a department of tuberculosis; provision for the free distribution of smallpox vaccine; the passage of a birth and death law which will afford full and accurate vital statistics; the amendment of the medical practice act, giving the board control over medical licenses issued prior to 1899; a law giving the board control over water supplies and sewage disposal; provision for the establishment of branch diagnostic laboratories and provision for state schools and conferences of local health officers.

Several of these provisions will be written into the laws before the present general assembly adjourns. It is confidently expected that district health officers will be in the field during the coming year and that the sweeping campaign of education, the need of which is recognized by both state and national authorities, will be assured.

The criticisms and recommendations in the federal report are, in the main, fair and sound. It is gratifying that state and nation agree even in detail as to the plan which should be adopted. It is even more gratifying to know that the realization of the plan had, in many important parts, become a matter of practical realization even before the federal report appeared.

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## ACTIONS FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, L. L. B.,
CHICAGO.

*Ninth Article.*

One of the most frequent producers of malpractice claims, is a deformity consequent upon a fracture. Most frequent among fractures as a causative agent for such claims, is a Colles' fracture. The deformities so frequently resulting from this fracture, render the greatest care necessary in advising the patient of the possibility of a deformity and of having patient call at the office while under treatment and calling in another surgeon to examine it, if there appears a likelihood of a deformity resulting.

I have even had claims for malpractice to defend where the physician setting a Colles' fracture was immediately discharged after accomplishing a reduction and the patient thereafter attended by another. Claims are becoming more frequent than formerly if any bad result occurs and the x-ray has not been used,—that a failure to use the x-ray was the cause of the deformity, in that the physician did not properly inform himself and use ordinary agencies in making diagnosis. If the patient declines to have an x-ray plate made on account of expense the physician should insist upon such stand of the patient being communicated in his presence to some other person, for his own protection. The tendency is in such cases, when a bad result occurs and the patient has declined to incur the ex-

pense of an x-ray examination to color the facts, by asserting that the patient requested an x-ray examination, and that the physician stated that it was not necessary.

Many claims are also asserted in fracture cases when Lane plates are used and there is a failure of union and sepsis.

The division of opinion as to the propriety of using such plates under varying circumstances, makes it advisable:

1. To insert the plate only in a hospital with all its aseptic precautions.

2. If the practitioner has not used the plates, to call into consultation a surgeon who is familiar with their use to assist.

Cases of fracture, particularly those where a shortening may be anticipated, are to be looked upon as fruitful sources of subsequent claims and when the patient is in his own home and has not the services of a trained nurse to prevent removal of bandages, etc., it is the part of caution to have the case seen by some one outside of the family for their suggestion and advice and to safeguard claims of impropriety of treatment.

## NEW OFFICIALS

At the meeting of the House of Delegates held at Springfield, May 20, the following officers of the Illinois State Medical Society were elected:

President—Charles W. Lillie, East St. Louis.

President-elect—W. L. Noble, Chicago.

First Vice-President—F. S. O'Hara, Springfield.

Second Vice-President—H. P. Beirne, Quincy.

Treasurer—A. J. Markley, Belvidere.

Secretary—W. H. Gilmore, Mt. Vernon.

Councilor for Third District—C. D. Pence, Chicago.

Councilor for Sixth District—C. D. Center, Quincy.

Councilor for Ninth District—F. C. Sibley, Carmi.

Committee on Public Policy—A. M. Harvey, Chicago; J. A. Poling, Freeport; H. N. Rafferty, Robinson.

Committee on Medical Legislation—L. C. Taylor, Springfield; H. F. Bennett, Litchfield; N. M. Eberhardt, Chicago.

Committee on Medical Education—A. M. Corwin, Chicago.

## TUBERCULOSIS NOTES.

A diet in rich proteids is recommended as being best for tubercular patients.

A movable tubercular joint means an active tuberculosis; must be absolute immobilization if cure is expected.

The use of tuberculin does not mean the discardence of other therapeutic dietetic and hygienic treatment. It is only an aid, not a cure.

In a pregnant woman, with active pulmonary tuberculosis, terminate pregnancy and sterilize.

It is stated that albumin is present in sputum of every case where tubercle bacilli are found, and if no albumin is present, no bacilli will be found. Would be well to work out thoroughly, as several articles have lately appeared on this subject.

A so-called simple pleurisy, if followed up, in the vast majority of cases, will prove to be tubercular.

(Packard, Medical Record, Dec. 26, 1914.)

Points to be emphasized in the treatment of fever in tuberculosis: First and foremost, absolute rest in bed, preferably out of doors; artificial pneumothorax in selected cases; a trial with autogenous vaccines, especially when there is copious purulent expectoration; the cautious use, if at all, of tuberculin, and then only after other measures have failed; hydrotherapeutic measures suited to the condition and comfort of the patient; an ample diet, but not necessarily forced feeding; and the judicious use of antipyretics.

In a case suitable for the performance of an artificial pneumothorax, the operation should not be delayed, as waiting may result in such changes that the operation cannot be performed and the patient lose his only chance of recovery.

If artificial pneumothorax will save the tuberculous patient, why not use it early and save a long time of suffering and possibly lose the patient?

## SAN FRANCISCO MEETING—ALL ABOARD.

TOUR DE LUXE LEAVES CHICAGO THURSDAY, JUNE 17, 10 P. M.

Tour includes:

First-class railroad ticket to San Francisco, Los Angeles, San Diego and return.

Pullman standard sleeper to San Francisco, giving an entire section to two persons.

If two persons occupy one berth there is a reduction of $10 on the two tours.

Transfer of member and checked baggage to and from hotel at San Francisco.

Seven consecutive days at Hotel Plaza in San Francisco (only two to double room), including seven breakfasts.

Seventy-five per cent of rooms with private bath, those making first reservations having first choice.

Seven admissions to Panama-Pacific International Exposition.

Admissions to twenty attractions within the exposition grounds.

Steamer trip (4 hours), San Francisco Bay, viewing the Golden Gate and exposition grounds.

Key trolley trip (7 hours) through Oakland, Alameda and Berkeley, visiting the University of California, famous Greek Theatre and Idora Park.

Trip to Mt. Tamalpais (8 hours), on the "Crookedest Railroad in the World."

"Trip to Chinatown" with guide escort.

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Official Itinerary of the Chicago Medical Society Special Train:

Leave Chicago 10 p. m., June 17, via Rock Island Lines. Arrive Belleville 6:15 p. m., June 18, via Rock Island Lines. Arrive Colorado Springs 7:30 a. m., June 19, via Rock Island Lines.

Leave Colorado Springs 10:30 a. m., June 19, via Denver & Rio Grande. Arrive Salt Lake City 11:30 noon, June 20, via Denver & Rio Grande (Mt. time.)

Leave Salt Lake City 2:30 p. m., June 20, via Western Pacific (Pac. time). Arrive Oakland 5:50 p. m., June 21, via Western Pacific. Arrive San Francisco 6:30 p. m., June 21, via Western Pacific.

The cost, as outlined, is $141.

Returning over any Central or Southern route you may choose. Returning via Northern route, $17.50 extra.

The Plaza Hotel has about 75 per cent of its rooms with bath, and Gregory Tours have waived their original extra charge for rooms with private bath, therefore those who make their reservations first will be assigned to rooms having private bath.

When you make your last payment, please specify the route you wish to return by.

*Make your reservations now. Last call.*

Dr. R. R. Ferguson, Chairman Transportation,
Chicago Medical Society,
3923 N. Keeler Ave., Chicago, Ill.

Dear Doctor: Please reserve accommodations for.....persons on our Panama-Pacific International Exposition Tour. I enclose herewith check for $....., being first payment on each reservation (second payment will be made in thirty days).

Make all checks payable to Gregory Tours or Dr. Ferguson.

Signed.....
Address.....
Date..... State.....

## Public Health

### SURGEON-GENERAL'S OFFICE CORRECTS PRESS ACCOUNTS OF GRUBBS' REPORT.

The following telegram from the Acting Surgeon General of the U. S. Public Health Service to the Secretary of the Illinois State Board of Health is of special interest at this time in view of misinterpretation of report of Dr. Grubbs on health administration in Illinois:

Washington, D. C., May 24, 1915.

Dr. C. St. Clair Drake,
Secretary, State Board of Health,
Springfield, Ill.

"Understand Grubbs' report construed by some papers to be condemnation of Illinois State Board of Health. On contrary this report is constructive in character and points out present executive in office only since May, 1914. Am informed by Grubbs, his recommendations except in minor particulars substantially those of State Board of Health to Economy and Efficiency Committee. Am pleased at unanimity of these opinions in respect to public health needs of state."

(Signed) GLENNAN,
Acting Surgeon General.

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### STATUS OF LEGISLATION OF INTEREST TO PHYSICIANS ON MAY 31, 1915.

PUBLIC HEALTH.

Legislation at Springfield, in which the medical profession of the state is interested, stands at this writing as follows:

The Optometry Bill, House Bill No. 9, now on third reading in the house and made a special order of reading for Tuesday, June, 1.

The Birth and Death Registration Bill, Senate Bill No. 213, passed the senate and now on second reading in the house. Representative Edward J. Smejkal looking after interests of this bill in the house. Has been made an administration measure and probably will pass.

The Thon Bill, House Bill No. 582, providing for prevention of blindness from ophthalmia neonatorum, passed the house May 27, will probably be on second reading in house June 2. Senator Dailey of Peoria fathering this bill in senate. Is a good bill and should pass.

The Burres Bill, House Bill No. 477, provid-

ing for restoration of jurisdiction over medical certificates of licentiates of State Board of Health of period prior to July 1, 1899, passed house by vote of 102 for, none against, and now on second reading in senate. Senator Cornwell is looking after interests of this bill. Should become law.

The Anti-Narcotic Bill, Senate Bill No. 300, passed the senate and now in Judiciary Committee of the House. Must get out of committee by June 2 if it is to become law this session.

The State Board of Health Reorganization Bill, Senate Bill 240 and House Bill 592, still in committee. No chance this session.

House Bill 468, exempting from civil service physicians and lawyers employed in state, county, city or other political division service. Introduced by Dr. Lipshulch of Chicago. Still in Committee on Civil Service.

Anti-Vending Bill, Senate Bill No. 84, still in Committee on Judiciary and Judicial Practice of Senate. No chance this session. Fought by patent medicine vending interests.

Senate Bills No. 301 and 302, introduced by Senator Broderick of Chicago, prohibiting physicians from writing prescriptions in other than English and prohibiting pharmacists from filling prescriptions when written in other than English. Both bills still in committee.

House Bill, No. 668, introduced by Rep. Sonnemann, providing for first aid medical service to injured employes requiring hospitals, physicians and druggists to extend such aid to those injured while employed, compensation to be provided by employer if working under Workmen's Compensation Act, by county board if not operating under such act. This bill still in Committee on Judiciary.

House Bill No. 655, introduced by Rep. Hamlin, defines "feeble minded person" and provides for commitment to institutions, passed the house by practically unanimous vote May 28. Now in senate.

House Bill No. 709, compelling railroads to furnish first aid to injured. Still in Committee on Public Utilities.

## JOLIET DISREGARDS HEALTH RULES AND IS PAYING THE PENALTY.

### SCARLET FEVER NOW EPIDEMIC.

During the last two weeks the State Board of Health has been giving special attention to a rather serious outbreak of scarlet fever at Joliet.

On invitation of Mayor Barber and Health Officer Higgins of Joliet, representatives of the state health department have been making investigations and holding frequent conferences with the city authorities and the medical society of that city.

Investigations have established the fact that the widespread prevalence of the disease is due to too early release of cases from quarantine, in most instances within three weeks. In this connection it is interesting to note that the recent epidemics of scarlet fever at Decatur and Mattoon were due to the same cause and that just as soon as the required period of quarantine, five weeks, was established, the epidemics very promptly subsided.

Rigid enforcement of the State Board of Health rules for the control of contagious diseases is urgently recommended to all communities. Such enforcement will prove vastly less costly and annoying than an epidemic.

## REGISTER OF LICENSED EMBALMERS READY FOR DISTRIBUTION.

A new directory of the licensed embalmers of Illinois recently compiled by the State Board of Health is now ready for distribution. Copies can be obtained, without charge, by addressing request to the secretary at Springfield.

## ANOTHER REASON WHY ILLINOIS SHOULD GO DRY.

VERBATIM COPY OF COMPLAINT RECEIVED BY STATE BOARD OF HEALTH.

A————, Ill., May 24, 1915.

Dear Sir:—

"For we had a wedding in our neighborhood and while they tapted the beer one of the fellows dished out the old rinch watter what they had used all after noon to wash glasses and handed that out to the men to drink. the next day he told and laught about that to Mr. F— F— and B— H—. The one who done that was Mr. B— W—, A....., Ill. I hope you don't let that go lik that for he is full of all kind tricks like that.

But please let me out of that and call on F— F— and B— H—, they know more about that as I do."

Yours truly,

———— ————.

## Auto Sparks and Kicks

### A CAUSE OF CARBON FORMATION.

A factor making for carbon deposit one that is generally overlooked by the motorist, is poor adjustment of the carburetor. A flooding carburetor and one having too rich a mixture (too much fuel in proportion to the air) will cause a voluminous deposit of the carbon in the form of lampblack. This is due to the fact that too small a quantity of oxygen is present, making it impossible to burn both the fuel mixture and oil vapors. As a result carbon is deposited from the partially burned fuel, and more rapidly from the highly heated unburned lubricant. When the exhaust shows a black smoke the fuel should be cut down by adjusting the carburetor to a point of leanness of mixture that will cause back firing, then increase the fuel supply until the popping ceases. Always adjust the carburetor when the motor is warm. The failure of the motor to start on other than an exceedingly rich mixture does not warrant the waste of fuel, and the cause of the trouble should be located and corrected.

### INFLATING TIRES.

"Inflate slowly at first," says L. Greenwald, manager service department the Firestone Tire and Rubber company. "There are a great many views as to the proper pressure, but it is rulable to inflate the front tires to a pressure equivalent to seventeen or eighteen times their cross-section and the rear tires to a pressure equivalent to twenty times the cross-section. For example, 34x4 tires on front wheels should have from sixty-eight to seventy-two pounds pressure, while on the rear wheels the pressure should be about eighty pounds. The tire should round out pretty well and not flatten under the weight of car and passengers.

Reinflate the tire occasionally, as the inner tubes are permeable when the rubber is heated to 80 degrees or more and 15 or 20 per cent of the pressure then is lost."

### OIL SHOULD BE DRAINED OFF.

Because the lubricant loses its efficiency the old oil should be drained from the crankcase or sump of the motor, and the system rinsed out thoroughly with kerosene before renewing the supply. It is poor economy to add a pint or so to bring the old supply up to the proper level for the reasons above stated, and the motorist who adheres to such a practice invites unnecessary repair bills.

Many troubles developing from improper lubrication are due to the owner's not understanding the principles of the lubricating system of his motor. Certain systems do not require cleaning as frequently as others, such as the all-loss.

### GETTING FLAME WITHOUT A MATCH.

In the repair shop and on the road one often is required to have a flame and finds no matches available. Should one happen to be out in the country and in the dark, usefulness of the following means of obtaining an excellent flame will be appreciated. It consists in winding a small bunch of waste or a piece of cloth around a stick or the end of a tool, dipping it into the gasoline tank and then lighting the torch thus manufactured by holding it in the path of the sparks that jump between the end of a disconnected cable and the sparkplug terminal.

Sometimes a spark may be made to shoot from the pat-cocks of the cylinder by racing the motor.—*Motor Age.*

### CASTOR OIL AS A LUBRICANT.

Sometimes, if you happen to run out of cylinder oil and cannot secure any readily—although this is not at all likely nowadays, with so many garages all over the country—go to a drug store and buy castor oil and use it. The foreign racing cars that took part in the 500-mile races at Indianapolis Memorial day used this article almost exclusively. The odor from the exhaust when castor oil is used is not pleasant, but the lubricating qualifications are high, although the cost is naturally prohibitive for ordinary use.

### RATTLING IN THE BRAKE-BANDS.

Rattling is often due to the fact that the breaks need relining. When worn down they generally are noisy. Shim up or bush the suspension points so that there will be no lost motion. It is advisable to use small coil springs to keep the suspended parts from hitting the brake drums.

## Society Proceedings

### ADAMS COUNTY.

The Adams County Medical Society met in regular monthly session May 10 at the Hotel Newcomb, Quincy. Meeting called to order by President C. R. Bates. The attendance was a record-breaker, and we wish that it would continue.

The morning was devoted to business matters, among them being a communication from the Jefferson County Medical Society, requesting our society to act on a proposed definition of the Illinois Medical Practice Act (Section 7), and to instruct our delegate to the state meeting to support the same. By a motion which prevailed, the movement was endorsed and the delegate instructed to act as requested. It was further moved that when this proposed change becomes a bill, it be referred to our legislative committee with power to act immediately. Seconded, carried.

On motion of Dr. Christie, Councillor Center, whose term expires this year, was given a vote of thanks for services rendered, and his name endorsed for re-election. Seconded, carried. At this point, Councillor Center spoke about the revision of the constitution and by-laws of the state society and gave a few legitimate reasons why they should be revised. He ended his talk by making a motion that this society instruct its delegate to do his best at the next meeting of the house of delegates to secure the desired revision. Seconded and carried unanimously.

Then we adjourned for lunch, which was served in the hotel breakfast room.

The afternoon session was given over to Dr. Charles Davison of Chicago, who was the guest of the society on this occasion. The doctor brought his suitcase along, which contained instead of the usual paraphernalia, an immense number of Roetgenograms, illustrative of the cases which the Doctor told us about. The subject of this most interesting paper and talk was, "Autoplastic Work in Recent Fractures." Judging from the results obtained, this work is sure to become a very important adjunct to modern surgery.

Dr. Kirk Shawgo, one of our members, permitted us to use his electric shadow box, and was given a rising vote of thanks for his kindness.

Those who were fortunate enough to be present felt well repaid for coming, and showed their appreciation to Dr. Davison in various ways; the final one, by a rising vote of thanks. Meeting adjourned about 4 p. m.

ELIZABETH B. BALL, Secretary.

### ALEXANDER COUNTY

The regular monthly meeting of the Alexander County Medical Society was held at the Commercial Club Rooms, Cairo, April 15, 1915. The president, Dr. McNemer, presided. The other members present being Drs. Dickerson, Cary, Davis, Grinstead, Fields, Gassoway, Dodds, Dunn, A. A. Bondurant and Flint Bondurant. Minutes of the last meeting were read and approved.

Dr. Dunn reported an interesting case of glaucoma complicated by chronic morphinism. Three years ago patient first came under his care for acute glaucoma of right eye. Efforts to relieve with eserine failed and an iridectomy was done. Recently, while under the treatment of another physician for the morphin habit, patient developed acute glaucoma in left eye. Dr. Dunn thought the worry coincident with the withdrawal of morphin caused the acute glaucoma to develop in the left eye, which was evidently predisposed. Dr. Bondurant thought that the cessation of the use of morphin permitted the pupil, which had heretofore been kept contracted from the continued use of morphin, to relax, thereby obstructing the canal of Schlemm.

Drs. Dodds and Davis reported a case of eclampsia, which they had successfully treated by the "Strogonall method."

Dr. A. A. Bondurant reported a case of post-operative hiccough treated by opiates and chloral.

Dr. S. B. Cary gave an excellent discourse on "The Pulse," and elaborated on the arterial system from a physiological-pathological standpoint, and the discussion was led by Dr. McNemer and was participated in by the various members.

The question of the optometry bill was discussed and a resolution adopted approving same, copies of which were ordered sent to our representatives.

Dr. W. F. Grinstead was elected special delegate to the Illinois State Medical Society meeting in May. A motion was made and unanimously carried that Dr. J. A. Warner of the department of experimental medicine of Parke, Davis & Co. be invited to deliver a lecture to the society at its next meeting. Meeting adjourned.

FLINT BONDURANT, M. D.
Secretary.

### COOK COUNTY.

CHICAGO MEDICAL SOCIETY.
PROGRAM.

*Regular Meeting, April 28, 1915.*

1. "A New Method of Securing Bony Ankylosis of the Vertebrae in Potts' Disease by Means of a Bone Transplant" (lantern slides), A. E. Halstead. Discussion—Chas. M. Jacobs, John Lincoln Porter.

2. "Tuberculous Infection as a Disease Entity," George Thomas Palmer, Springfield, Ill. Discussion—Arthur F. Beifeld.

3. "What of the Child with Enlarged Glands? O. W. McMichael. Discussion—F. S. Churchill, John Ritter.

*Child Welfare Meeting, May 5, 1915.*

1. "The Mental Health of the Child," Wm. O. Krohn. Abstract: Senses present before birth;

mental faculties at birth; order in which mental faculties unfold; period of growth; three crises of child life; mental abnormalities arising from insufficient regard for the principles of mental growth; relation between mental and physical growth; how to make school, as well as play, and all other occupations, redound to the development of mental, as well as physical, wholesomeness and sanity.

2. "The Chemistry of the Boy," Mr. John D. Shoop, first assistant superintendent of schools.

3. "The Beginnings of Delinquency and Criminality," Wm. Healy, director of the Psychopathic Institute of the Juvenile Court. Discussion—Miss Edna Foley, superintendent Visiting Nurses' Association; Mr. John L. Whitman, superintendent House of Correction; Annabel Cleveland Test, chairman, Child Welfare Committee, Woman's City Club; Frank S. Churchill, chairman Infant Welfare Society; J. W. VanDerslice.

*Regular Meeting, May 12, 1915.*

1. "Practical Points Determining Permanency of Cure in Operations for Hernia," A. J. Ochsner.

2. "Hernia in Children," Coleman Buford.

3. "Relation of Hernia to Undescended Testis," Daniel N. Eisendrath. Discussion——E. Wyllys Andrews, C. W. Hopkins, Wm. E. Schroeder.

*Regular Meeting, May 26, 1915.*

1. "Hydrophobia—The Problems," C. E. Hemenway.

2. "Hydrophobia—What Is Being Done by the State Board of Health," John A. Robison, president Illinois State Board.

3. "Rabies in Animals in Cook County," D. M. Campbell.

4. "Treatment of Hydrophobia," Antonio Lagorio. Discussion—R. R. Ferguson, Joseph Hughes, Chicago Veterinary College; J. O. Cobb, surgeon U. S., P. H. S.; Benjamin Gruskin, Robert Zeit.

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

MEETING OF MARCH 15, 1915.

(Continued from Page 407)

### CONGENITAL ANOMALIES OF THE LEFT EYE.

Dr. Herbert L. Walker reported a case of congenital anomaly of the left eye and exhibited the patient. The right eye was normal; distant vision 20/20 minus 1; left eye, 22/100; field contracted; absolute scotoma; nerve head colobomatous; arteries and veins anomalous; retina poorly supplied with vessels. Retina has misplaced pigment spots, but it is a question whether these are misplaced pigment spots or a diseased condition. The macula has a sac-like protuberance of about two or three times the size of the nerve head, and from the optic nerve run fine fibers over toward this sac-like protuberance. The sac is about 4 mm. high at the lower portion and at the upper it is about 2 diopters high. He believes there is fluid in the sac. The cyst is white. There are no vessels traversing it. It is almost transparent at the upper portion with a greenish hue. The whole thing looks almost snow-flake like.

As to the literature, Fuchs speaks of a cyst-like protuberance at the macula and says it is congenital.

DISCUSSION.

Dr. Harry S. Gradle said there were one or two things that would rule out the congenital phase of this case. There were inflammatory symptoms and signs in the choroid and retina around the abnormality. At the lower edge of it the retina was fluffy. The retina was somewhat thickened, in which vessels appear, and there was a fluffy condition around the upper edge. There were several choroidal spots. At one point one of the vessels ran into it and disappeared. The whole thing ran on top of the nerve layer. If the condition were congenital, he did not think there would be these inflammatory signs, and there would be vessels showing on the surface of it. He thought it was some sort of inflammatory condition and suggested puncturing the cyst with a fine needle.

Dr. Walker, in reply, said, first, there was coloboma of the nerve head. Second, there was an anomalous distribution of the retinal arteries, which was not due to an inflammatory condition. There were pigment spots, and the cyst-like condition at the macula was not due to an inflammatory condition. The cyst looked more like the cyst of a cysticercus, but the cyst of a cysticercus was semi-transparent. This was not the cyst of a cysticercus. The retina was not normal. These pigment spots might be pathologic. To puncture the cyst would mean very heroic treatment, and he would not undertake to puncture a cyst so near the optic nerve. The patient consulted him on account of divergent strabismus which dated back to childhood. The man had 45 degrees of divergent strabismus.

### LESION IN UPPER PORTION OF CUNEUS.

Dr. George F. Suker exhibited a set of visual charts of a rather unique case. He also showed x-rays pictures of the case which were taken on the 18th of February. Patient was chief of police of one of the cities in the state who, while performing his duty, was held up and shot in the right occipital region, the bullet passing backward and upward and a little downward toward the right side. He was picked up unconscious, taken to the hospital, but nothing was done for him. He remained in a hebetudinous condition for several weeks until he recovered sufficiently to get about. Patient was sent to Dr. Suker for consultation. He showed three stereoscopic views of the field of vision. There was a distinct shadow round about the impact of the bullet, part of it pressing upon the inner table of the cranium and the other part outside of the skull. The fields disclosed homonymous symmetrical quadrangular hemianopsia to a degree. There was scotoma in the left eye, but not very definite. This placed the lesion, as far as he could determine, in the cuneus and conformed to the exact lineation of the retinal fibers in their occipital endings, as outlined by Schaefer and Sanger Brown years ago. The lesion, he thought, must be in the upper portion of the cuneus because the quadrangular fields were limited. The x-ray findings and shadows of the brain corre-

sponded to about the location of the cuneus, and the man was recovering fairly well, although nothing had been done, because the bullet was not within the brain, and the edema present was most likely due to a hemorrhage by countrecoup, and he thought it would be useless to do any trephining or compression operation. This was the consensus of opinion of two other men who saw the case with him.

A very peculiar symptom was that when the patient looked down and turned his head toward the right and struck the blind field, he immediately had vertigo; he had the sensation of falling over a precipice, but as soon as he swung the eyes around this symptom disappeared. He had 20/20 vision, was presbyopic, with 4 or 5 D. There was no hyperemia of the disc or engorgement indicating the line of pressure along the optic nerve either by choked disc or neuro-retinitis.

According to the literature, there were only 15 or 20 cases of such quadrangular fields on record.

DISCUSSION.

Dr. Thomas Faith recalled two cases of homonymous quadrangular hemianopsia, one in a patient with pneumonia who subsequently died. The other patient, a pneumonic case, lived for some time, was able to get about again and was fairly comfortable. In her case the quadrangular hemianopsia persisted throughout life. She died suddenly without any explanation for her death. These cases were seen one winter, coming close together, within three or four weeks. He thought there might have been a local metastatic focus responsible for the trouble. Dizziness was very marked, so much so that the patient found it difficult to get around unless she had some particular guide and followed it in going from one room to another.

Dr. Suker said that this was the first instance where he could possibly trace the trauma to the cuneus lobe, or which conclusively proved to his mind the characteristic endings of the retinal nerve fibers as far as the interpretation of objects was concerned. It was largely due to Sanger Brown that the checkerboard division of the retina had been accepted.

## NEW SPECULUM.

Dr. Charles C. Darling exhibited a modified speculum designed by Crookman, which has a separate blade above and below that fits into the main blade and will hold a piece of rubber tissue or oiled silk which will cover the margin of the lid, the lashes, and the skin of the lid, giving the operator a sterile field to work in.

## XERODERMA PIGMENTOSUM.

Dr. Lee Wallace Dean, Iowa City, Iowa, reported the ocular findings in two cases of this disease, and stated that it is a rare disease of the skin which makes its appearance frequently in several children in a family, while the history of the parents shows no disease which can be associated in any way with the trouble in the children. The patients are born with normal skin and develop in the first, or at the latest, during the second year, circumscribed red spots on the skin. These spots appear only on the parts of the body that are exposed to the sun. They disappear as a rule in a short time with scaling, but make their appearance again soon afterwards with the action of sunlight.

The eyes suffer in xeroderma from involvement of the lids and conjunctiva, and more rarely the cornea. The first signs of the disease usually make their appearance in the face and especially on the lids. With the scarring of the skin and atrophy ectropion is produced. Usually very early in the course of the disease the eyelashes fall out. From the freckle-like spots warty elevations appear, which finally are converted into true carcinoma. These growths may affect all four of the lids. The conjunctiva is often affected by the xeroderma. In addition to the conjunctivitis we find numerous red spots with pigment flakes and dilated blood vessels in the conjunctiva. In the beginning these changes are often very slight, but with careful investigation they are usually discovered. Marked shrinkage of the conjunctiva is often noticed. Opacity of the cornea is frequently present. The tumors sometimes involve the conjunctiva. A true carcinoma of the corneo-scleral boundary has been reported in xeroderma.

No definite therapy for the trouble is known. The carcinomatous nodules should be removed by surgical methods.

The first case was V. F., white, poorly nourished, female, 8 years of age.

Eyes: O D vision equals ability to count fingers at 15 feet. O S vision equals counting fingers at six feet. There is an ectropion of the upper and lower lids of each eye, the ectropion being due in each case to the formation of a warty-like mass on the eyelid. These masses have the appearance of epithelioma of the lids. On the lower lid of the right eye the subcutaneous tissue as well as the skin is involved. On the other three lids only the skin seems to be involved in the pathological process. Patient suffers somewhat from photophobia.

Right eye: Tarsal conjunctiva of upper and lower lids very much thickened and reddened; numerous ectatic vessels; bulbar conjunctiva markedly injected. Surface of the cornea smooth and glistening except near the nasal margin where there are two whitish elevations of the cornea which look like piled up epithelial cells. Each elevation is about half the size of a pin head. The whole of the cornea is diffusely opaque, the pacitites being most marked in the upper two-thirds. Both conjunctival and ciliary vessels extend into the cornea, the vascularization being most marked above. The pupil dilates well with homatropin. Iris tissue apparently normal. The interior of the eye cannot be distinctly seen. The two little spots on the anterior surface of the cornea give the impression of being papillomatous.

The findings in the left eye are similar to those in the right, except in the outer margin of the cornea there is a pigmented spot extending from the root of the iris forward into the corneal tissue. This area is about 5 mm. long in a horizontal direction, and 3 mm. in a vertical direction. The spot looks just as if the deeper layers of the cornea had been tatooed with India ink.

Case 2, aged 8 years: General condition and condition of skin similar to that of his sister except he has no warty excrescences.

The general treatment of the patients is under the direction of Dr. Kessler, by whom these patients were referred to the author. The systemic treatment consists in the use of cocoa butter externally and internally injection of auto serum. The latter procedure is carried out by drawing away from the patient blood, allowing it to clot, and then, by the use of the centrifuge, the serum is secured as clear as possible and reinjected. This treatment is improving the condition of the skin.

With the little girl he has removed the warty-like tumors from each of the lower lids and from the right upper lid, and several of the growths from the face.

DISCUSSION.

Dr. George F. Suker stated that two years ago he presented the cases of two children before the Chicago Medical Society. There were four children in the family. The oldest one was still living; three others had died since that time; one at the age of three, another at five, and the other at seven. He did not see the child that was three years of age, but the other two, aged five and seven years, respectively, came under his observation. The difference between Dr. Dean's cases and those he saw was that instead of the lesions being carcinomatous, they were sacro-carcinomatous. The patient, who was five years of age, had a distinct nodular growth on the right cornea and a pustular nodule on the lower lid, causing a marked entropion, on which he performed a plastic. The eye subsequently had to be enucleated and a short time thereafter the patient died. Both children were extremely emaciated. Serum injections and x-ray were tried, but of no avail. He lost track of the child of seven because the family had moved away.

Xerdoerma pigmentosum is a rare skin lesion, and when it appears very little or nothing can be done for it. Usually the disease begins at two or more years of age and seldom runs beyond the seventh or eighth year. He does not believe there are more than 100 cases of the disease on record, covering a period of from 80 to 90 years.

*(To be continued.)*

## FULTON COUNTY.

*Seventy-first Meeting, Canton, Ill., May 4, 1915.*

The seventy-first meeting of the Fulton County Medical Society met in the Auditorium of the Y. M. C. A. building in Canton, Ill., May 4, 1915, and was called to order at 2:00 p. m. by President Howard.

The minutes of the December meeting were approved. The memberships of Dr. H. T. Baxter, by transfer from the Sangamon County Medical Society, was accepted.

Dr. Stoops presented a partial report as to the revised by-laws and constitution. The committee had concluded that the constitution and by-laws of the Morgan County Medical Society contained the best in Medical Society regulations and with the necessary changes to apply to this society would give us a most satisfactory constitution and by-laws.

Dr. J. E. Coleman was elected as alternate to the state meeting.

Dr. Frank P. Norbury presented a paper on "The Emotions-Fatigue Exhaustion."

A report of "Seventy-seven Cases of Cystitis," arranged according to their etiology into nine groups, was presented by Dr. T. W. Gillispie of Peoria.

"Focal Infection" was presented by Dr. M. H. Whitlock of Canton. These papers were freely discussed.

Ray and Oren moved that the committee on constitution and by-laws were instructed to make the necessary changes in the Morgan county constitution and by-laws to conform to this society and present the same at the next meeting for consideration. Carried.

Visitors present: Dr. F. P. Norbury, Jacksonville; Dr. W. T. Gillispie, Peoria; Dr. E. W. Oliver, Peoria; Dr. Whiting, Canton; Dr. Allison, Good Hope

Members present: Howard, Parks, Oren, Kellar, Stoops, Snively, Chapin, Coleman, Hayes, Zeigler, Betts, Crouch, Allison, Whitlock, Ray, Putman and Boynton. Total, 22.

D. S. RAY,
Secretary.

## HENDERSON COUNTY.

The Henderson County Medical Society met in Lomax, Illinois, May 4, 1915, at 1 p. m. Members present: W. J. Emerson, president; E. E. Bond, I. F. Harter, A. E. Lauver, H. L. Marshall, J. W. Medley, C. E. Kaufman and H. V. Prescott. Visitors present: John A. Robinson, Chicago; president of the State Board of Health; A. L. Brittin, Athens, president of the Illinois State Medical Society; F. N. Tambaugh and E. J. Wehman, Burlington, Iowa; C. B. Ripley and C. M. Rose, Galesburg; M. L. Bishoff, D. L. Newton, W. Peimer, C. F. Wahrer, C. W. Wahrer and J. W. Walker, Fort Madison, Iowa; Wm. Scott, Dallas City, Ill.

The minutes of the last meeting were read and approved. On motion, Drs. Kaufman, Prescott and Marshall were appointed a committee on resolutions.

The committee on resolutions reported. On motion, it was resolved that the society is opposed to the passage of House Bill No. 9 and Senate Bill No. 240, and that Senate Bills Nos. 213, 301 and 302, and House Bills Nos. 477 and 582 be endorsed and urgently request their passage.

*Resolved,* That because of the conditions that exist in regard to cancer, the Henderson County Medical Society appoint a committee of three to act as a county cancer commission, one to be appointed for three years, one for two years and one for one year. Hereafter, one to be appointed each year to fill vacancy.

*Resolved,* That this committee, through the delegate to the State Medical Society, recommend that the president of the state society appoint five or more of its members as a commission to be known as the Illinois State Cancer Commission. The duties of these commissioners will be to further any research or statistical work that may aid the solution of the cancer problem. Also, that it is theirs to initiate a work of education of the people

in regard to the question of cancer, its cause, prevention and curability. The president appointed Drs. J. P. Riggs of Media; E. E. Bond, Stronghurst, and C. E. Kaufman, Oquawka, as such commission. The following program was then taken up:

"The Doctor's Opportunity," Dr. John A. Robison, Chicago.

"Cause, Pathology and Treatment of Rheumatism," Dr. A. L. Brittin, Athens.

"Fractures of the Patella," Dr. F. M. Tombaugh, Burlington, Iowa. Discussed by Drs. Rose of Galesburg and C. W. Wahrer and C. F. Wahrer of Fort Madison, Ia.

"Rheumatism in Infancy and Early Childhood," Dr. C. B. Ripley, Galesburg. Discussed by Drs. M. L. Bishoff, Fort Madison, Iowa; C. M. Rose, Galesburg, and I. F. Harter, Stronghurst.

"Indigestion, Causes Shown by Skiagraphs," by E. J. Wehman, Burlington. Interestingly discussed by several.

## LAKE COUNTY.

The Lake County Medical Society held its regular quarterly meeting at the Moraine Hotel in Highland Park on Tuesday evening, April 27, 1915.

Immediately following dinner we proceeded with the regular order of business. The minutes of our last meeting were read and approved. The question of having a uniform quarantine regulation for Lake county was brought up by Dr. H. B. Roberts, and the chair appointed a committee of two, Drs. Roberts and Tombaugh, to make necessary investigation and report on same at our next meeting. Dr. J. P. O'Niel, Highland Park, was elected delegate to meeting of the State Medical Society, and Dr. M. Hereschleder, Waukegan, was elected alternate. The local secretary was instructed to accept the invitation of the State Board of Health to make use of motion film "Tommy's Birth Certificate."

For the purpose of creating more enthusiasm and more of a "get together spirit" in our ranks the question of holding monthly meetings instead of quarterly as has been in practice, was discussed and it was unanimously decided that beginning with the June meeting the Lake County Medical Society shall meet regularly once each month.

The following program was then presented:

Paper, "Significance of Casts in Renal Disorders," by Dr. J. P. O'Niel. Discussion opened by Dr. H. B. Roberts.

Paper, "Hypernephroma," by Dr. F. M. Barker. Discussion opened by Dr. A. R. Sheldon.

Paper, "Functional Tests in Renal Disturbance," by Dr. M. Herschleder. Discussion opened by Dr. W. S. Bellows.

Case reports, "Renal Surgery," by Dr. J. C. Foley. Discussion opened by Dr. J. L. Taylor.

The following members were present: Drs. Barker, Bellows, Foley, Herschleder, Taylor, Tombaugh, H. B. Roberts, Rogers, Haskins, Ullmann, O'Niel and Ambrose.

It was decided that we make an outing of our June meeting, invitations to include the ladies and well filled baskets. Meeting then adjourned.

C. S. Ambrose,
Secretary.

## ROCK ISLAND COUNTY.

The regular bi-monthly meeting of the Rock Island County Medical Society was held April 13 at the New Harper Hotel, Rock Island, with twenty-three members and four visitors present. After the annual reports of the secretary and treasurer were presented the society proceeded to elect the following officers for the ensuing year: President, J. M. O. Bruner, Port Byron; first vice-president, G. A. Wiggins, Milan; second vice-president, H. A. Beam, Moline; treasurer, A. T. Leipold, Moline; secretary, A. E. Williams, Rock Island; delegates to state society, J. W. Seids, Moline, and W. D. Chapman, Silvis.

The applications for membership to the society of G. L. Langworthy, Moline, and Peter S. Winner, Watertown, were received. A committee consisting of Drs. Leipold and Chapman was appointed to draft an amendment to the by-laws providing for a probationary residence in Rock Island County before membership applications may be received.

Dr. L. W. Littig, Davenport, Ia., read a paper of unusual interest on "Two Postoperative Tragedies; Dilatation of the Stomach and Embolism." Dr. A. L. Brittin, president of the Illinois State Medical Society, gave an address emphasizing the importance of medical organization, and closing with a very practical paper on "Mouth Infections." Both papers were fully discussed by members of the society.

The next meeting, to be held in June, will be a joint meeting with Scott County Medical Society. The presence of distinguished guests at this meeting is anticipated.

A. E. Williams,
Secretary.

## ST. CLAIR COUNTY.

The regular meeting of the St. Clair County Medical Society was held in Elk's Hall, East St. Louis, May 6, 1915, with President R. L. Campbell presiding and the following members present: Drs. Lillie, Cannady, Housh, Evans, Zimmerman, Van Boyd, Harney, Vonamel, C. T. and Walter Wilhelmj, DeHahn, Wiggins, Fairbrother, Housing, Fulgum, Arbuckle, J. C. and F. H. Gunn, McCracken, Thorp, Stanton, Bottom, Thompson, Scrugs, Lippert, Rendlemann, Skaggs, Rives, Linder, Lane, Spitze, Applewhite, H. Little, Ed. C. Little, T. C. Little, Kuerritz, Culbertson, Moeller, McNary, Boyne, Spannagh and Harvey. Visitors: the Honorable Mayor of East St. Louis, Mr. Mall-

man; Mr. Rapp, U. S. Internal Revenue Commissioner 18th District, State of Illinois; Hon. Joseph B. Graff of Peoria. Drs. Barker and Klug were elected to membership in the society by acclamation.

The secretary, Dr. Portuondo, being absent, Dr. E. H. Lane acted as secretary, and after the minutes of the last meeting were read and approved, the regular program was given.

Mr. John M. Rapp, internal revenue officer, 18th District Illinois, gave a very interesting talk in explanation of the anti-narcotic law as applying to the physician, following which the subject was open to discussion. A great many questions were asked which Mr. Rapp answered very clearly and concisely, and a rising vote of thanks was tendered him for his very able talk. Dr. Lillie made a motion that a vote of approval of the anti-narcotic law be made by the society, which was seconded and carried unanimously.

Dr. Rendlemann of East St. Louis read a paper on "Health Laws and Their Enforcement," which, in the opinion of the members present, hit the nail on the head in every respect. The discussion which followed was preceded by a short talk by Mayor Mallman of East St. Louis, who coincided with the salient parts of Dr. Rendlemann's paper, and stated that insofar as was in his power he would see that such ideas were carried out; and would be glad at any time to meet with and assist the society in that respect. The president appointed an investigation committee of five members from E. St. Louis, five from Belleville and one from each township, in an attempt to carry out the points in Dr. Rendlemann's paper. A publicity committee of five members was also appointed by the chair, Drs. Fairbrother, Lippert, Linder, Arbuckle and Lane, in accordance with the opinion expressed by Dr. Rendlemann that such a committee could do a great deal of good.

Dr. Lillie read a very able treatise on "Relations of the Civic Authorities to the Tuberculous Poor," which was freely dicussed.

It was decided that the by-laws be amended so that in future, with the exception of July and August, the society should meet monthly instead of quarterly. Also decided that all future meetings of the society be held in Elk's Hall, East St. Louis.

The society then adjourned, after which a very palatable luncheon was served.

E. H. Lane, M. D.,
Acting Secretary.

## Personals

Dr. Janet Gunn announces her removal to 30 N. Michigan boulevard, Chicago.

Dr. James A. Clark announces his removal to 30 N. Michigan boulevard, Chicago.

Dr. Henry S. Bennett has succeeded Dr. Perry H. Wessel as city physician of Moline.

Dr. and Mrs. Alexander C. Wiener, Chicago, have returned from a visit to Useppa Island, Fla.

Dr. Walter Stevenson, Quincy, who has been ill with diphtheria, is convalescent and has resumed practice.

Dr. Evarts A. Graham, Chicago, has been appointed surgeon in chief of the Park hospital, Mason City, Iowa.

Dr. Henry B. Favill, Chicago, was elected president of the National Dairy Council at its meeting in Chicago, April 24.

Dr. Robert L. I. Smith sailed for Europe, May 8, to work in the Belgian Red Cross with Dr. Dupage, surgeon-general of the Belgian army.

Dr. Adam Szwajkart, Chicago, has been appointed head physician, and Dr. Haim I. Davis, consulting physician to the Cook County Psychopathic hospital.

Dr. Anna Dwyer, Chicago, has been appointed a member of the subcommittee of the morals commission on regulation of pool rooms and additional recreation facilities.

Dr. Henry G. Wildman of the County Tuberculosis hospital, Oak Forest, has been restored to professional standing by the decree of Assistant County Judge Hoover, dated May 14.

Dr. Walter H. Watterson, Waukegan, has been appointed head physician of the tuberculosis department of the Cook County Tuberculosis Sanatorium, Oak Forest, succeeding Dr. Glenford L. Bellis, resigned.

Dr. E. C. Rosenow, a member of the staff of the Memorial Institute for Infectious Diseases, has been appointed one of the directors of the Mayo Foundation and chief of the department of bacteriologic research. He expects to assume his new duties about July 1.

The Howard Taylor Ricketts prize for research in the departments of pathology and bacteriology and hygiene at the University of Chicago, which is awarded annually on May 3, the anniversary of the death of Dr. Ricketts from typhus fever acquired while investigating that disease in Mexico City, has this year been awarded to Miss Maud Slye for her work on "The Influ-

ence of Inheritance on Spontaneous Cancer Formation in Mice."

## News Notes

—Scarlet fever was epidemic in Mattoon and children were forbidden attending shows.

—Smallpox was reported also from Rochelle and Ashton, public meetings being forbidden and schools closed at the latter.

—Twenty cases of smallpox were reported at Rock Island, and thirteen at Pana in April. Both cities also had epidemics of measles.

—The Chicago Tuberculosis Institute appeals for contributions to make up the deficit of about $2,500 of the $12,000 needed for the budget for the year.

—Work on the new Iroquois hospital, Watseka, for the building and maintenance of which Mrs. Anna Donovan contributed $50,000, is almost completed.

—The fortieth annual meeting of the American Academy of Medicine will be held at the Panama-Pacific Exposition during the meeting of the American Medical Association.

—The Society of Medical History, Chicago, elected the following officers: President, Dr. Arthur R. Reynolds; secretary, Dr. Mortimer Frank; councilor, Dr. Charles B. Reed.

—Two prospective patients for the proposed leprosarium in connection with the Alton State hospital are Angelo Lunardi of Highland Park, and Anna Jacobs, a patient in Cook County hospital.

—A building has been erected on East Capitol avenue, Springfield, especially for the use of physicians and dentists. The building will be 60 by 40 feet, two stories in height, and will contain thirty rooms arranged in suites.

Professor Gronnerud is known as one of the most competent teachers of operative surgery in this country, and the Illinois Post Graduate Medical School is to be congratulated on this appointment to its already efficient staff.

—Examinations for admission to the grade of assistant surgeon, U. S. Public Health Service, will be held June 21 at Chicago and in other cities. Applications should be addressed to the Surgeon-General, Public Health Service, Washington, D. C.

—The Elgin Physicians' club, at its meeting May 3, adopted resolutions petitioning the mayor and commissioners to change the ordinance regarding the health department, so that the health officer must be a qualified physician with laboratory experience.

—Mercy Hospital, Chicago, has an addition with 100 rooms in prospect at the result of a bequest from the late Charles Haines of St. Charles. Work may be under way shortly through an advance of $200,000 from the Massachusetts Mutual Life Insurance Company.

—The Illinois State Board of Health announces an examination of candidates for the State license, June 21-26, at the Coliseum Annex, Chicago. Application must be made to the secretary of the Board at Springfield, on or before June 10, on blanks issued by the Board.

—Dr. Paul Gronnerud, professor of Operative Surgery, for the past ten years at the Chicago Policlinic, resigned May 1. He has been appointed surgeon to the West Side Hospital and professor of gynecology and head of the department of operative surgery in the Illinois Post Graduate Medical School.

—Rockford has decided on the establishment of a municipal tuberculosis sanatorium to cost about $17,000 and to be ready for occupancy in September. The building will be two stories and basement in height, and will be constructed of reinforced concrete tile and brick. The institution is to be known as the Oak Park Sanatorium.

—Examinations for admission to the Medical Corps of the United States navy will be held on or about July 6, 1915. Applications should be filed with the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. Further information will be furnished on application to the Surgeon General, U. S. Navy, Navy Department, Washington.

—We have received a booklet containing the afterdinner speeches made at a banquet given in honor of Dr. Charles C. Hunt, by the Lee County Medical Society. Dr. Hunt has had the proceedings, together with the letters of regret, issued in booklet form, which he is presenting to his friends as a token of his appreciation of the manifestation of their regard.

—The annual meeting and election of officers of the Illinois State Hospital Medical Association was held at the Watertown State Hospital, April 29 and 30. Dr. Charles F. Reed of the Peoria State hospital was elected president; Dr. Charles B. Caldwell of the Lincoln State Colony, vice-president, and Dr. Ralph R. McCarthy, Chicago State Hospital, secretary. Elgin was selected as the place for the next meeting and the time was set for September.

## Marriages

Ira Frank, M. D., Chicago, to Miss Sylvia Simon of Minneapolis, April 6.

Austin Albert Hayden, M. D., to Miss Mary Phillips, both of Chicago, April 28.

Wilson Ruffin Abbott, M. D., Chicago, to Miss Ruth Webb of La Grange, Ill., April 15.

Hugh P. Dorsey, M. D., Chicago, to Miss Guila Grace Chatron of Capac, Mich., May 4.

Samuel M. Green, M. D., Dixon, Ill., to Nellie E. Green, M. D., of Fowler, Ind., recently.

## Deaths

Henry E. Lubbinga, M. D. Rush Medical College, 1896; also a druggist; died in his drug store in Chicago, April 5, from influenza, aged about 48.

Thomas B. Drew, M. D. College of Physicians and Surgeons, Chicago, 1897; of Oswego, Ill.; a Fellow of the American Medical Association; died in Augustana Hospital, Chicago, April 28, from intestinal obstruction, aged 40.

Hiram H. Bardwell, M. D. Rush Medical College, 1869; for many years a practitioner of Flint, Mich.; was found dead at the home of his daughter in Chicago, April 24, from the effects of a gunshot wound of the heart, aged 75.

Edward Lincoln Kerns, M. D. State University of Iowa, Iowa City, 1889; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years a member of the board of supreme medical examiners of Modern Woodmen of America; died at his home in Moline, Ill., May 1, aged 49.

Frederic Shurtleff Coolidge, M. D. Harvard Medical School, 1891; a member of the American Orthopedic Association; a specialist in orthopedic surgery of Chicago; who moved to Pittsfield, Mass., about ten years ago on account of prolonged illness due to infection from an operation wound; died in New York city, May 15, from pneumonia, aged 49.

Catherine B. Patrick Slater, M. D. Northwestern Univeristy Woman's Medical School, Chicago, 1879; a Fellow of the American Medical Association; president of the Fox River Valley Medical Association in 1901-02; said to have been the first woman physician to gain entrance to the Berlin College of Medicine; surgeon to the Aurora City hospital, and for eighteen years a member of the board of education of Aurora, Ill.; died at her home in that city, May 10, from cerebral hemorrhage, aged 71.

Jerome Henry Salisbury, M. D. Rush Medical College, 1878; a Fellow of the American Medical Association; died suddenly at his home in Wheaton, Ill., May 14, from cerebral hemorrhage, aged 61. He was born in Fitchburg, Wis. He was valedictorian of his class in Wisconsin University, from which he graduated in 1876; soon after his graduation in medicine he began his teaching career as professor of chemistry in the Northwestern University Woman's Medical School, Chicago, later becoming assistant professor of chemistry and then assistant professor of medicine in Rush Medical College. He also occupied the chair of medicine in the Illinois Post-Graduate School. Dr. Salisbury's contributions to medical literature were extensive and varied. His acquaintance with foreign languages, added to his knowledge of medical writings, made him a valued consultant in the editorial positions which he occupied for several years. He was coeditor with Dr. Frank Billings of the section on General Medicine of the "Practical Medicine Series," and also coauthor with the late Prof. C. S. N. Hallberg of the "Physicians' Manual of the Pharmacopeia." He was also connected with the editorial staff of several other medical publications and since 1907 has been a member of the staff of the Journal. In the latter relationship his kindly manner and sympathetic aid won him the esteem and love of all his associates, who learned to value highly his extraordinary mental faculties and extensive medical knowledge.

## Book Notices

THE LIMITATION OF OFFSPRING BY THE PREVENTION OF CONCEPTION. By William J. Robinson, M. D. With an introduction by A. Jacobi, M. D., LL. D., ex-president of The American Medical Association. Price, $1.00.

The author, who is a pioneer in this country on the subject of fewer and better babies, has issued this book of 250 pages, giving all the arguments pro and con on the limitation of offspring by the prevention of conception. The book is very interesting, to say the least, and it will repay the time spent in reading it. Whether it will result in anything, only time will tell.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, Chicago. Volume IV. Number II. (April, 1915.) Octavo of 197 pages, 47 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Published bi-monthly. Price, per year: Paper, $8.00; Cloth, $12.00.

The present volume of clinics contains a large amount of space on osteomyelitis and spontaneous massive coagulation of cerebrospinal fluid, both of which are exhaustively treated. Several other topics, as carcinoma of colon, epithelioma of lip, intramural fibroid of uterus, and hypertrophy of the prostate, are included in this volume. One of the most interesting features included is a talk on carcinoma of the breast by Dr. Wm. L. Rodman, who has covered his subject in his usual interesting and masterly manner.

A MANUAL OF DISEASES OF INFANTS AND CHILDREN. By John Ruhrah, M. D., Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore, Md. Fourth edition, thoroughly revised. 12mo volume of 552 pages, 175 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $2.50 net.

As a result of its cordial reception, this fourth edition has been prepared, bringing it up to date. It is rather better than most manuals, covering the subject of pediatrics thoroughly. It is a book primarily intended for the student. For the physician it should be a handy desk book. References are extensive and the number of illustrations, which are very good, is above the average for a book of this size. For the purpose for which it is intended—for rapid reference—it can be recommended highly.

MATERIA MEDICA AND THERAPEUTICS. A Text Book for Nurses. By Linette A. Parker, B. Sc., R. N., Instructor in Nursing and Health, Teachers' College, Columbia University. 12mo, 311 pages, illustrated with 29 engravings and 3 plates. Cloth, $1.75 net. Lea & Febinger, Publishers, Philadelphia and New York. 1915.

A text-book for nurses, practical and instructive, where no attempt is made to include material not intended for them, nor containing matter that is not useful for nurses. Facts are presented; details that may confuse are avoided. The author emphasizes what action the drug ordered by a doctor may be expected to have, what untoward effects may be looked for, and the emergency procedure pending physician's arrival in case of overdose. It should prove a valuable book for the nurse.

PYELOGRAPHY (Pyelo-Ureterography). A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By William F. Braasch, M. D., Mayo Clinic, Rochester, Minn. Octavo volume of 323 pages, containing 296 pyelograms. Philadelphia and London: W. B. Saunders Comuany, 1915. Cloth, $5.00 net.

A timely work gotten up in an exhaustive manner, well illustrated from pyelograms of actual conditions found on X-ray examination. This subject, which is comparatively new and which has opened up a valuable method of diagnosis of surgical renal diseases, is ably treated by the author, whose large experience in the use of this method has been fully drawn upon.

The work is divided into ten chapters—the History of Pyelography Technic, the Normal Pelvis, Abnormal Position, Mechanical Dilatation, Inflammatory Dilatation, Renal Stone, Ureteral Stone, Renal Tumor, and Congenital Anomaly. A useful bibliographic index is included.

For those who are interested in surgical diseases of the kidney, this work should prove valuable. The mechanical features of this volume are excellent.

PATHOLOGICAL TECHNIQUE. Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By F. B. Mallory, M. D., Associate Professor of Pathology, Harvard Medical School, and J. H. Wright, M. D., Pathologist to the Massachusetts General Hospital. Sixth edition, revised and enlarged. Octavo of 536 pages with 174 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $3.00.

This new edition is chiefly gotten up to bring the subject of pathological technic up to date. The work now contains Bielschowsky's silver impregnation stain for nerve-fibers, connective tissue and reticulum, Bensley's methods for demonstration of mitochondria and other cytoplasmic granules, Herxheimer's alcohol-acetone solution of Scharlash R. for staining fat, the complement-fixation test for gonorrhoeal infection, Lange's collidal gold test, complement-fixation test for echinococcus test, and the Eyenes and Sternberg's silver impregnation stain for treponema pallidum in sections are included. Various other new methods and descriptions bring this valued book up to date. It is a reliable book on pathologic technic, and is suited to the needs of the general practitioner as well as the pathologic laboratory.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE for the Half Year October, 1912, to March, 1913. Vol. V., Part 2. Panama Canal Press, Mount Hope, C. Z. 1914.

"SWAT THE FLY!" A One-act Fantasy by Eleanor Gates, author of "The Poor Little Rich Girl," "We Are Seven," "The Biography of a Prairie Girl," "The Plow-Woman," etc. Colored Jacket by Everett Shinn. The Arrow Publishing Company, 116 West Fifty-ninth street, New York.

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# Illinois Medical Journal

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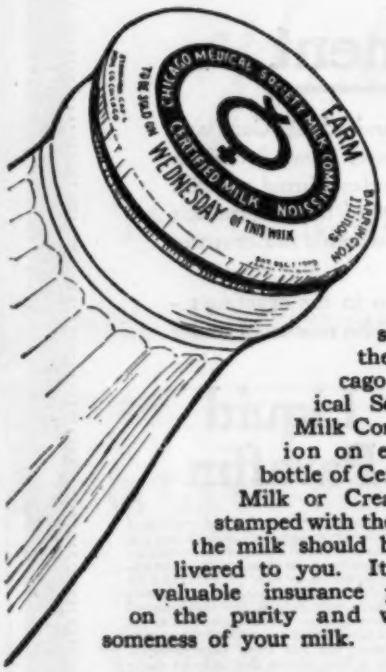


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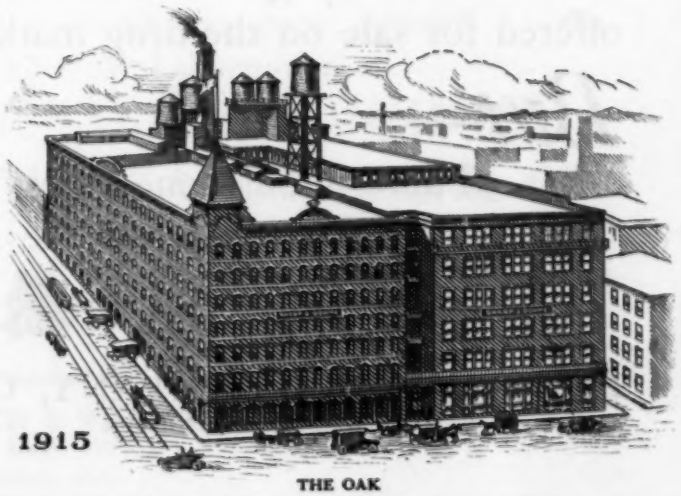

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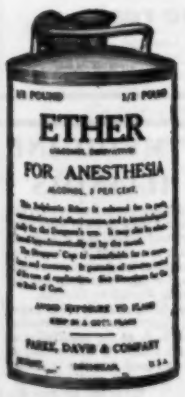


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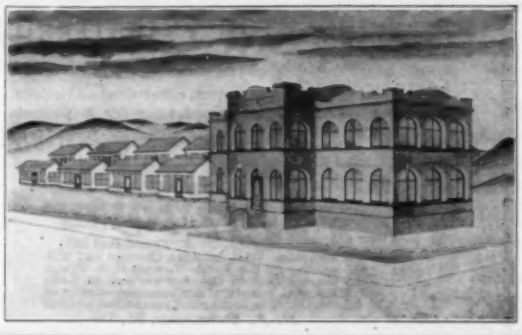

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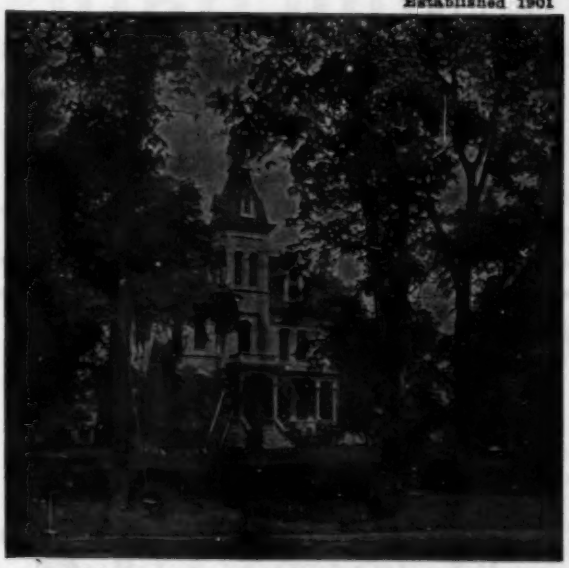

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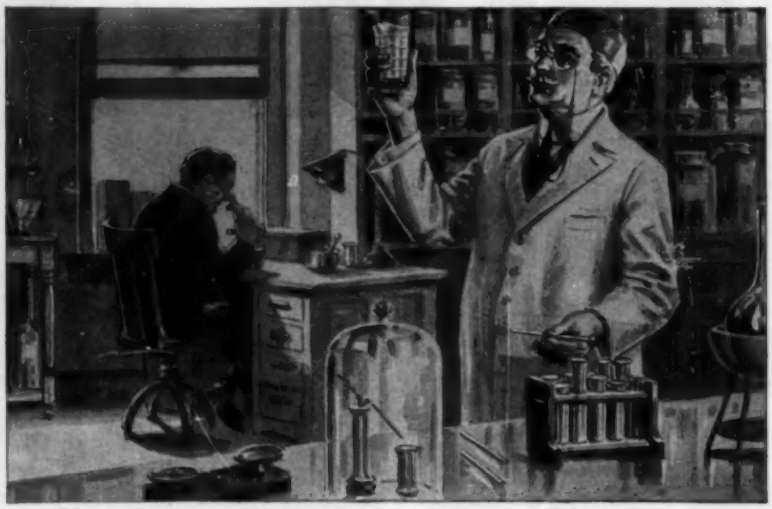

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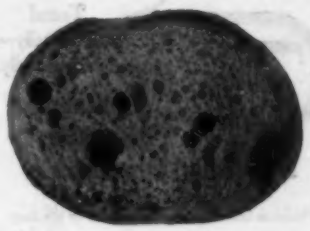

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